

# Catalysis and covalent binding energies of antibodies

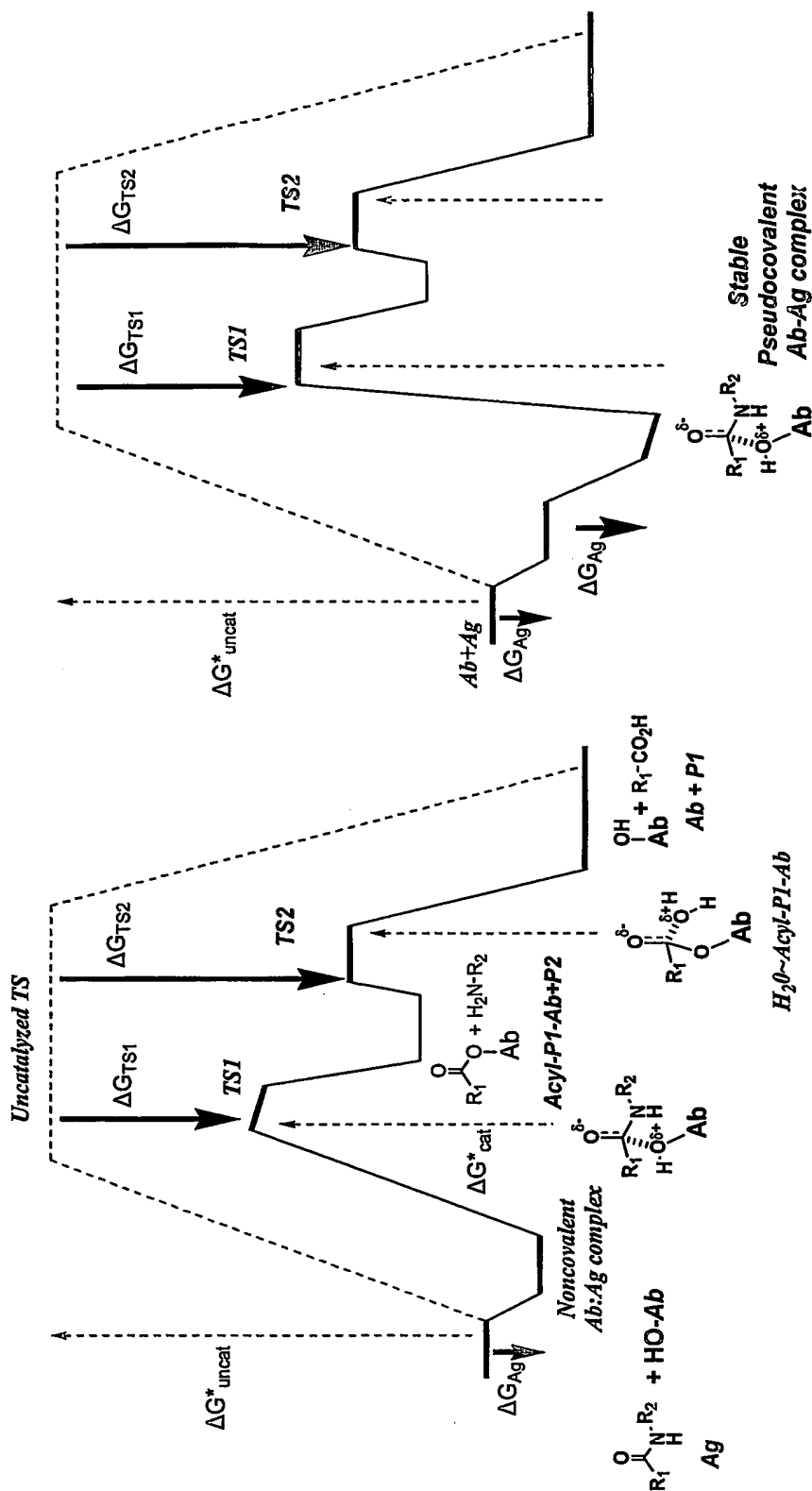
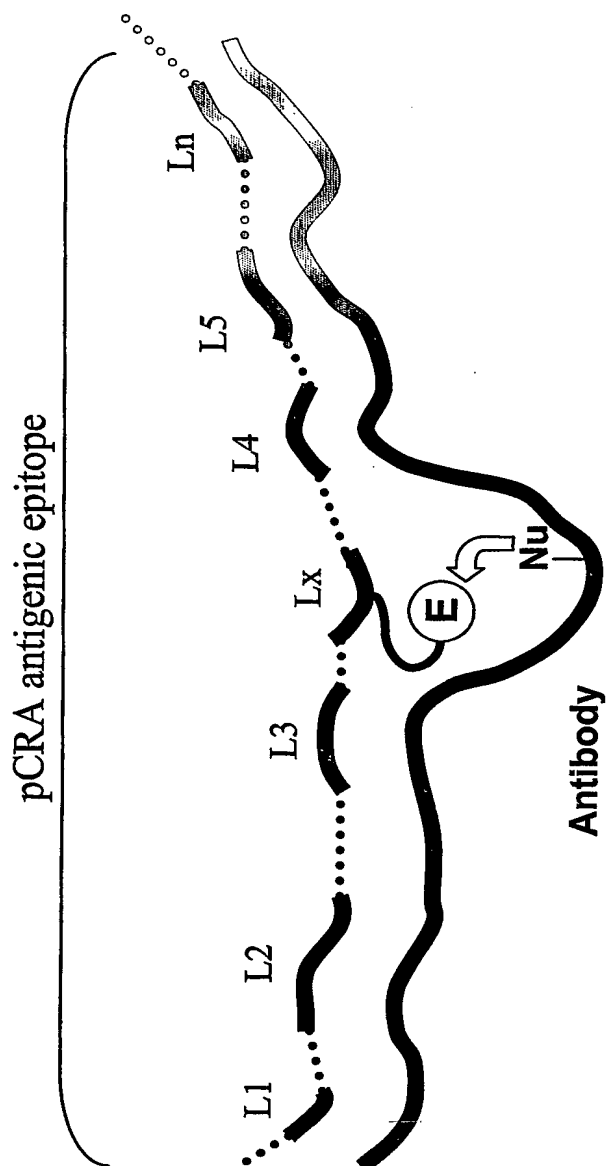


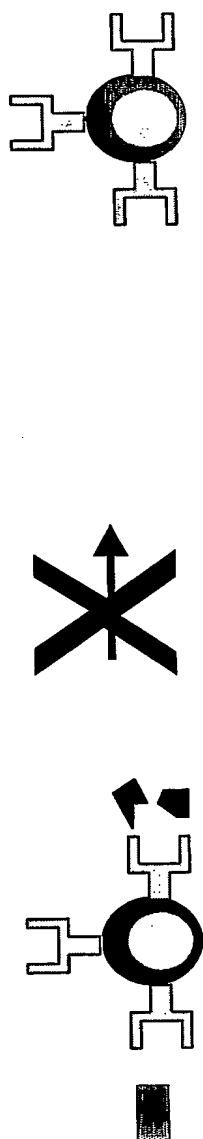
Fig 1

**Fig 2**

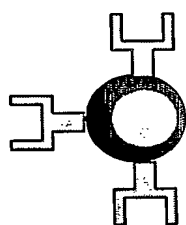


# Induction of catalyst synthesis

Ordinary polypeptide antigen,  
Slow transmembrane signal



Aborted clonal selection,  
tolerance



Covalent stimulation,  
Rapid transmembrane signal

Increased turnover, proliferation

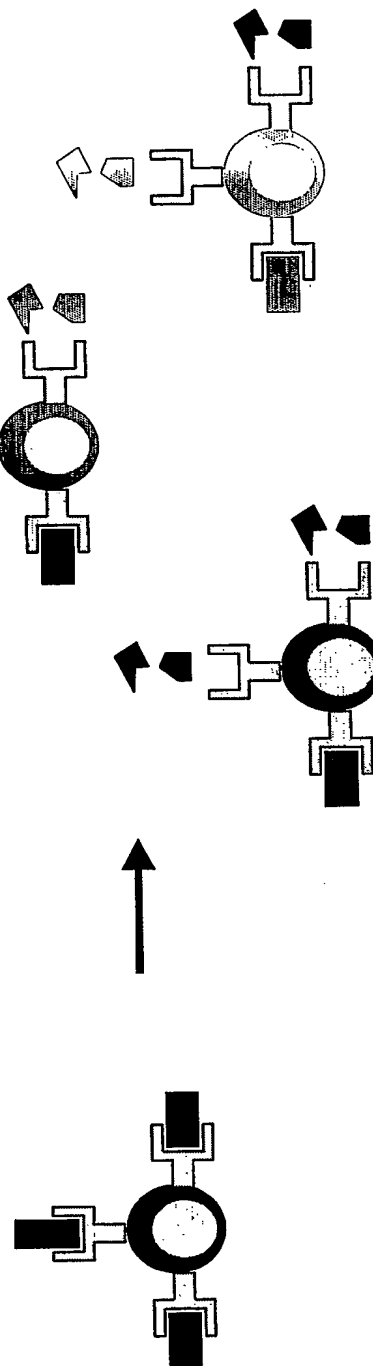
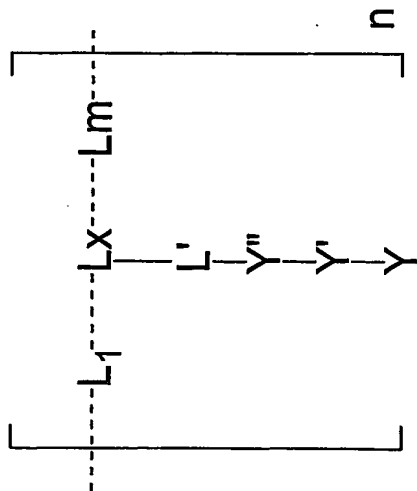


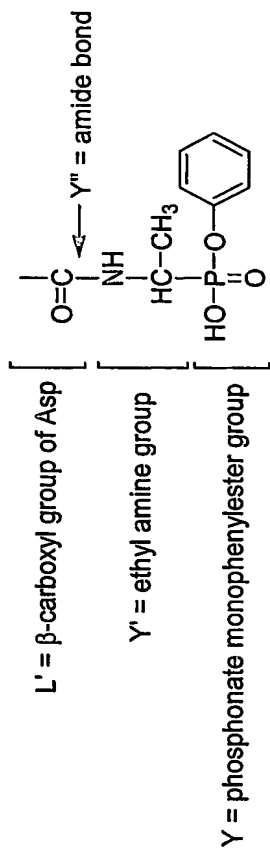
Fig 3

Fig 4

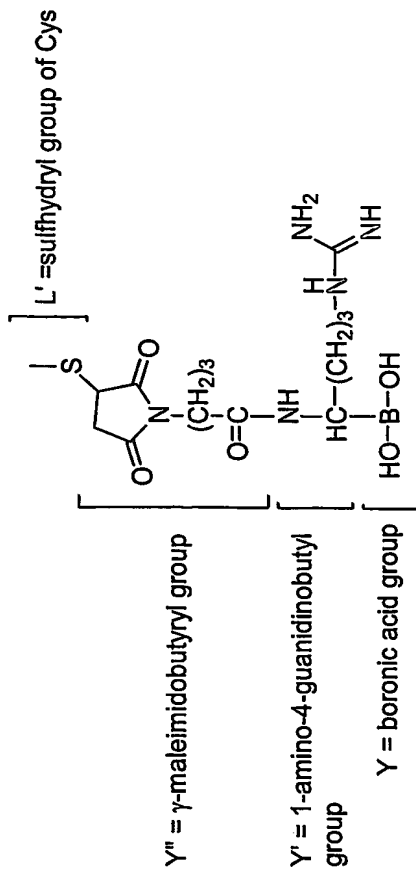
General structure of pCRA



• L'-Y''-Y'-Y, Example 1



• L'-Y''-Y'-Y, Example 3



• L'-Y''-Y'-Y, Example 2

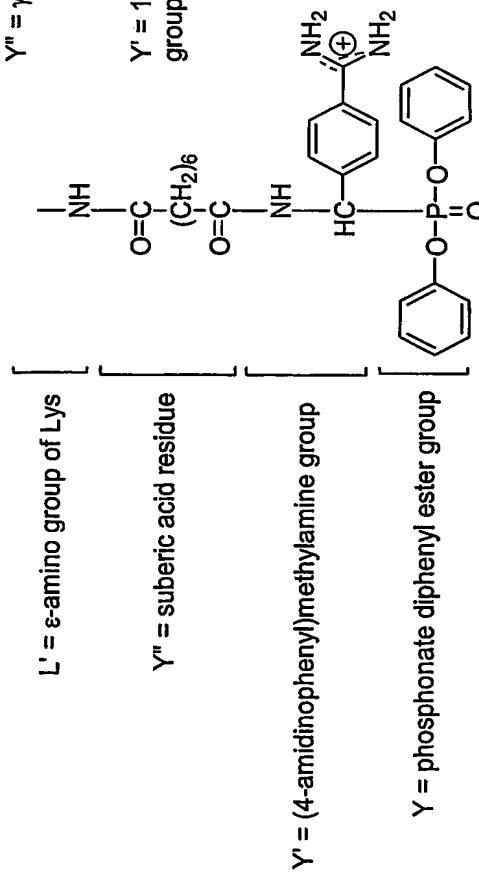


Fig 5A

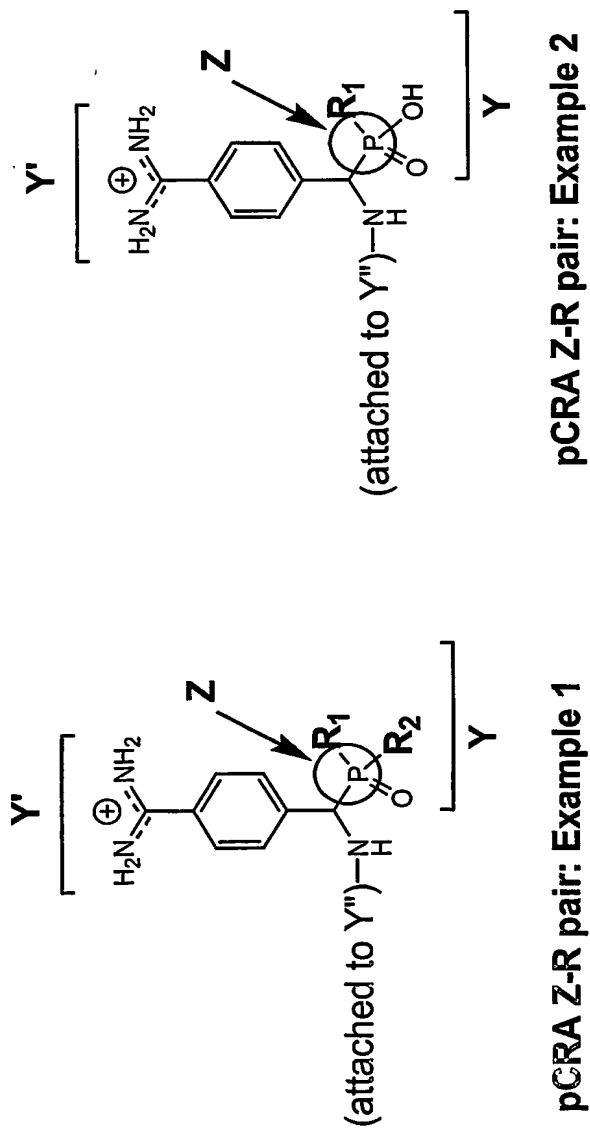


Fig 5B

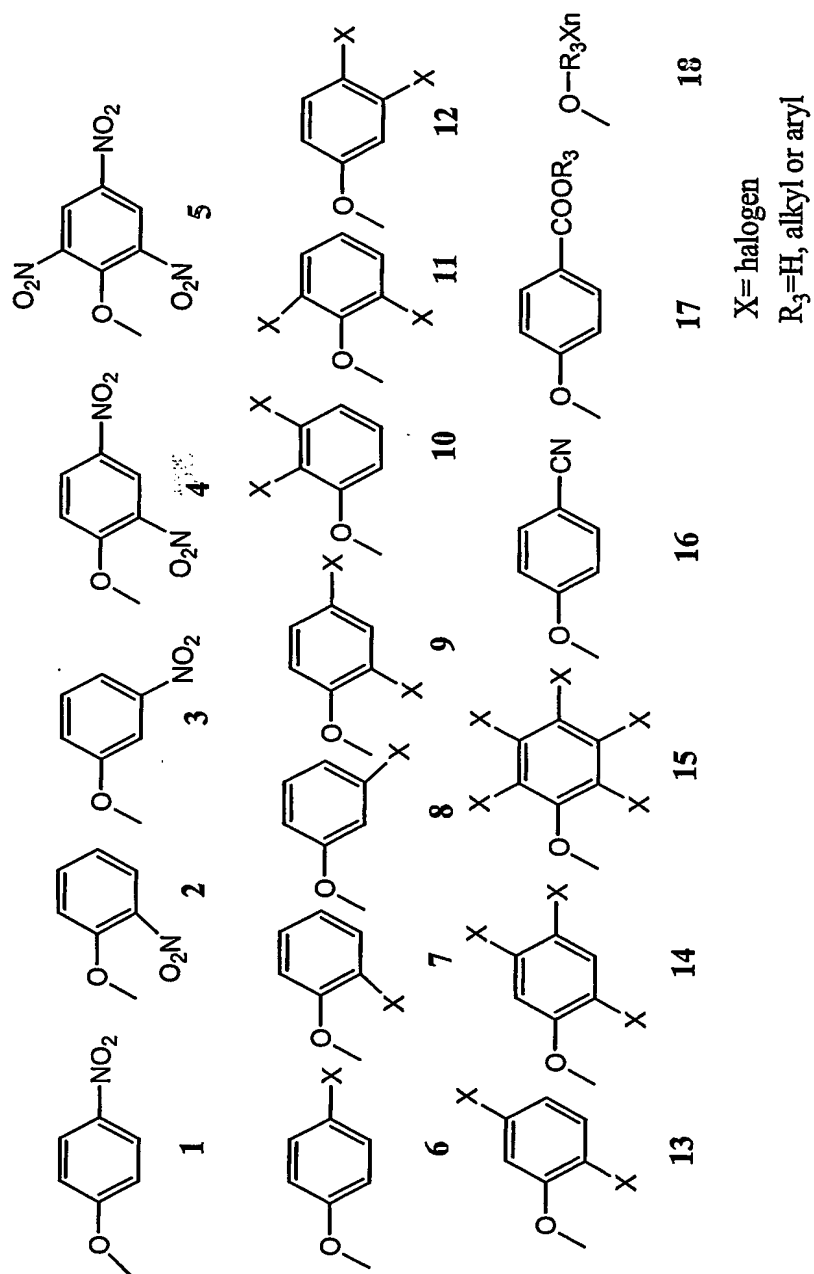


Fig 5C

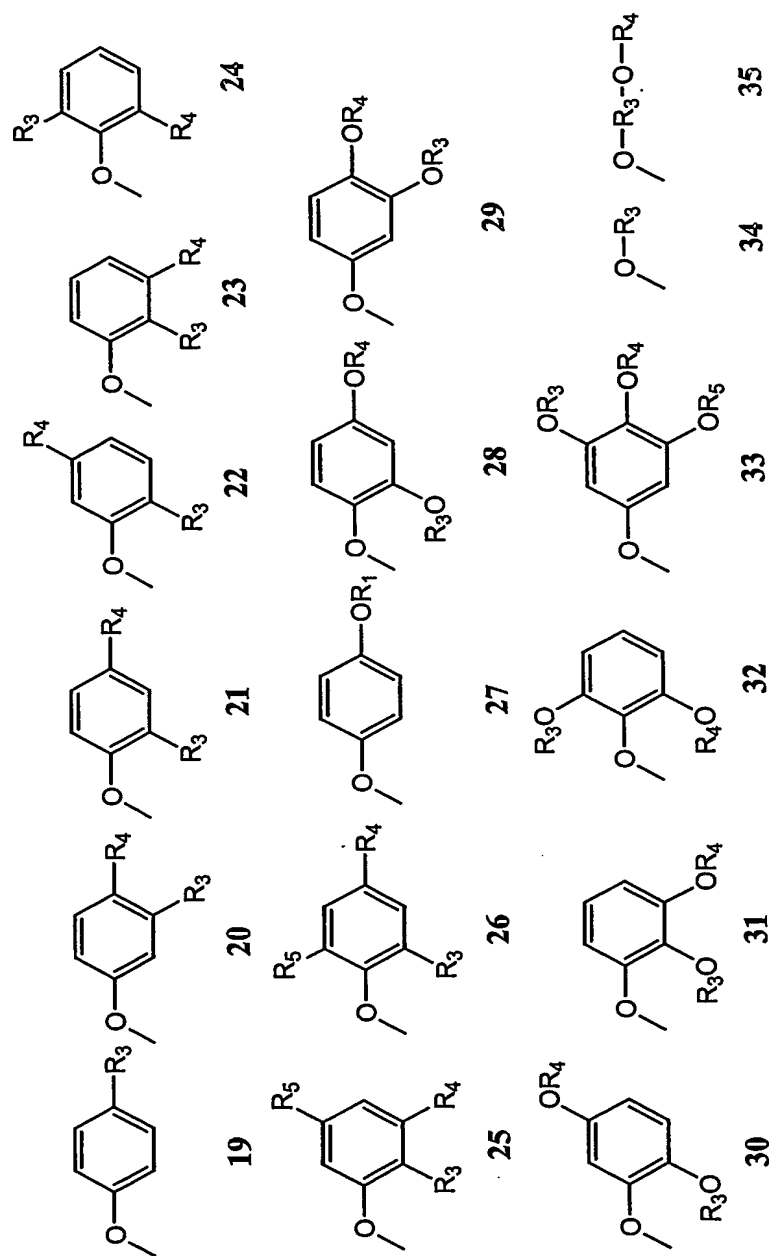
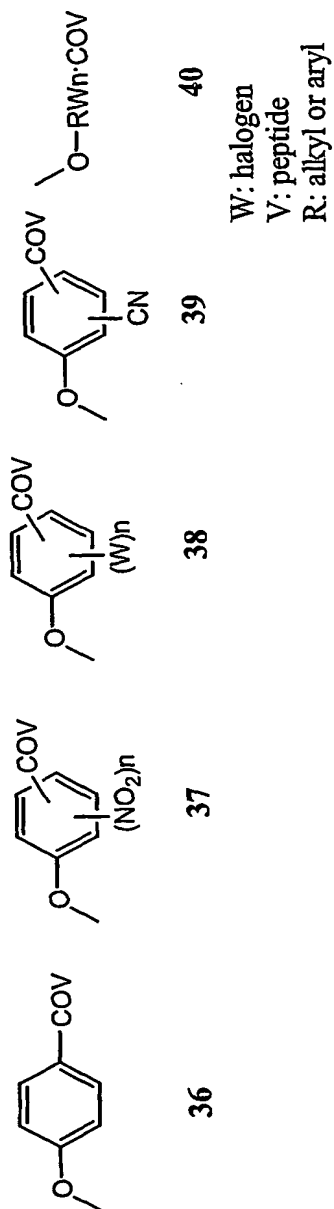
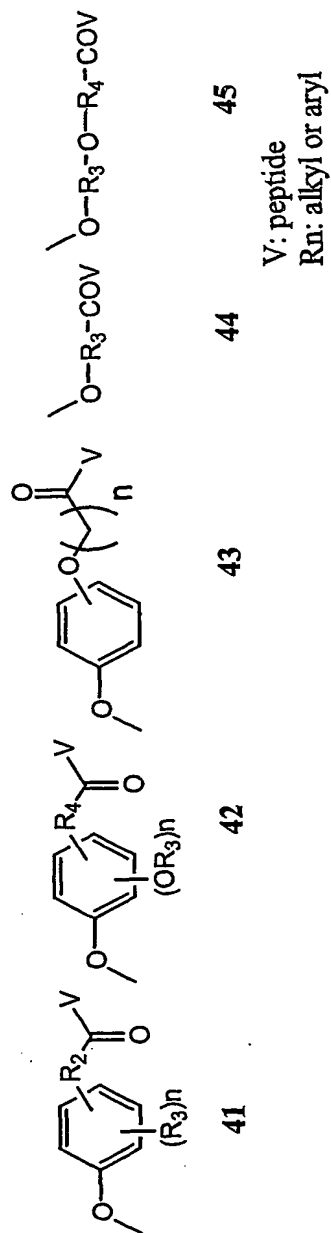
 $R_n = H, \text{ alkyl or aryl}$

Fig 5D

## A. Electron withdrawing substituents with peptide extension



## B. Electron donating substituents with peptide extension

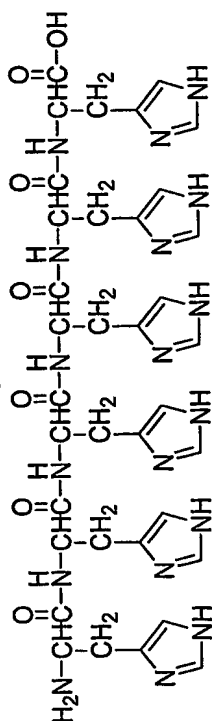




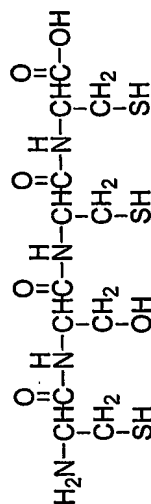
Selected examples of metal binding moiety

1. (His)<sub>n</sub>
2. (Cys-Aaa-Cys-Cys): metallothionein  $\alpha$ -domain-derived peptide
3. (Cys-Aaa-Cys): metallothionein  $\beta$ -domain-derived peptide
4. EDTA
5. a crown ether
6. DAMP

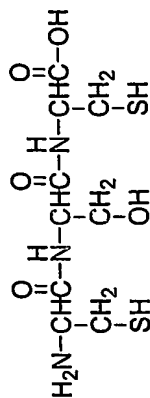
**Example of 1: (His)<sub>6</sub>**



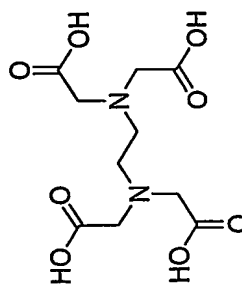
**Example of 2: Cys-Ser-Cys-Cys**



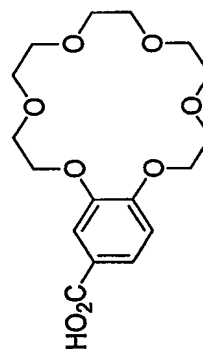
**Example of 3: Cys-Ser-Cys**



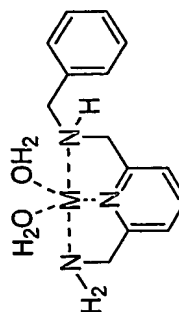
**Example of 4: EDTA**



**Example of 5: 4'-Carboxybenzo-18-crown-6**



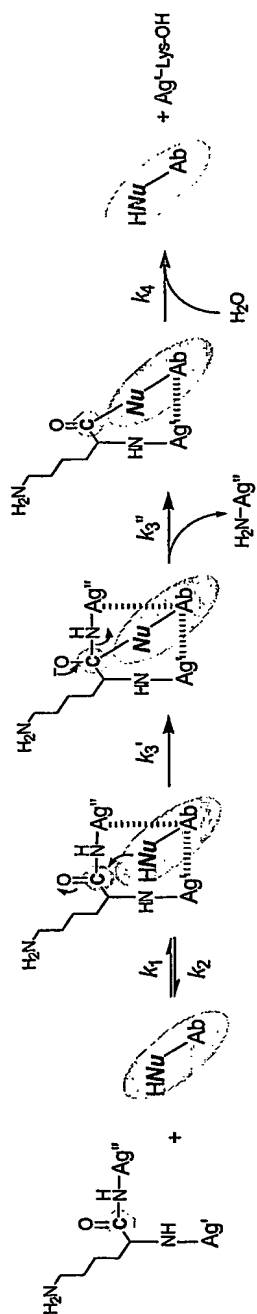
**Example of 6: DAMP**



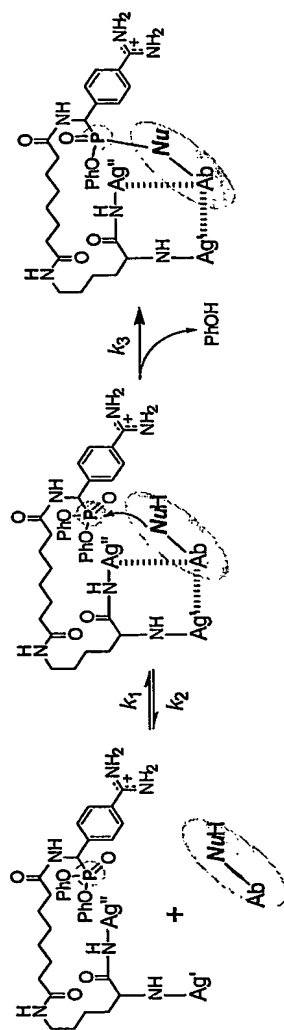
**Fig 6**

Fig. 7

A



B



C

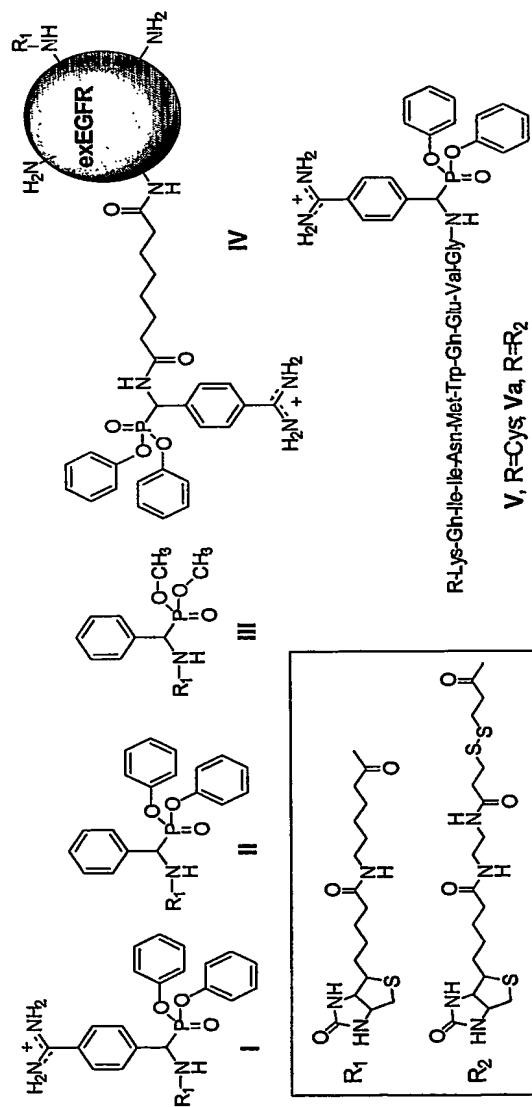


Fig. 8

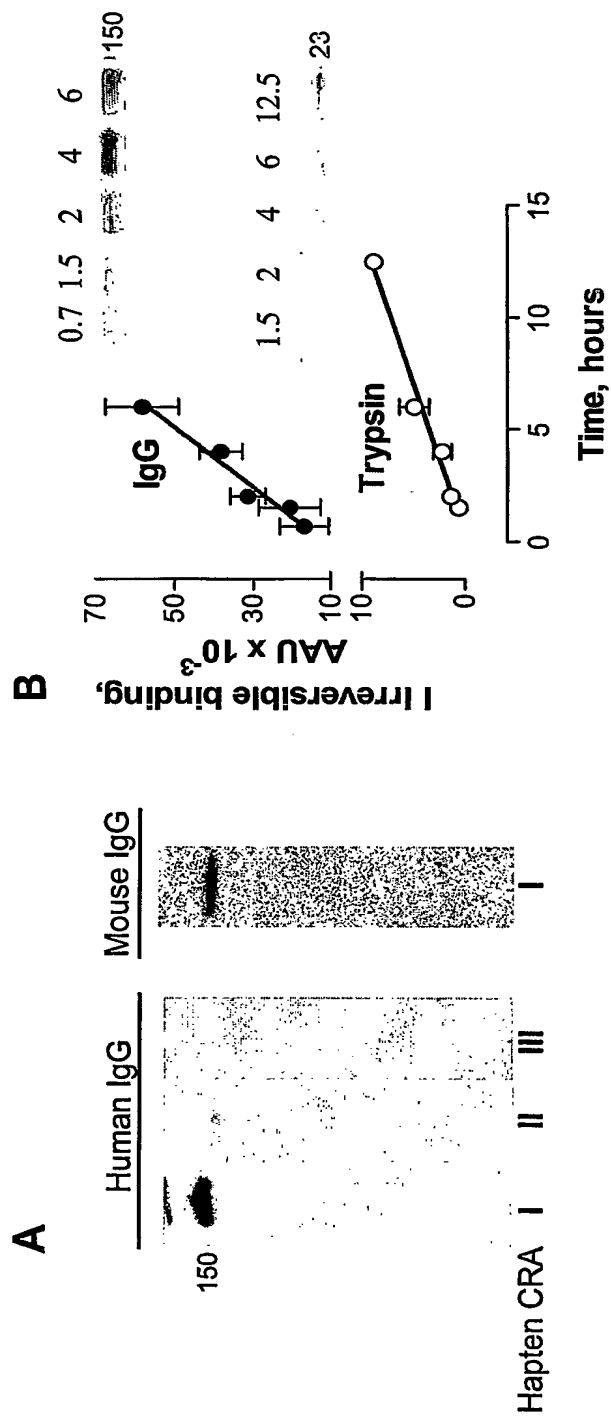


Fig. 9

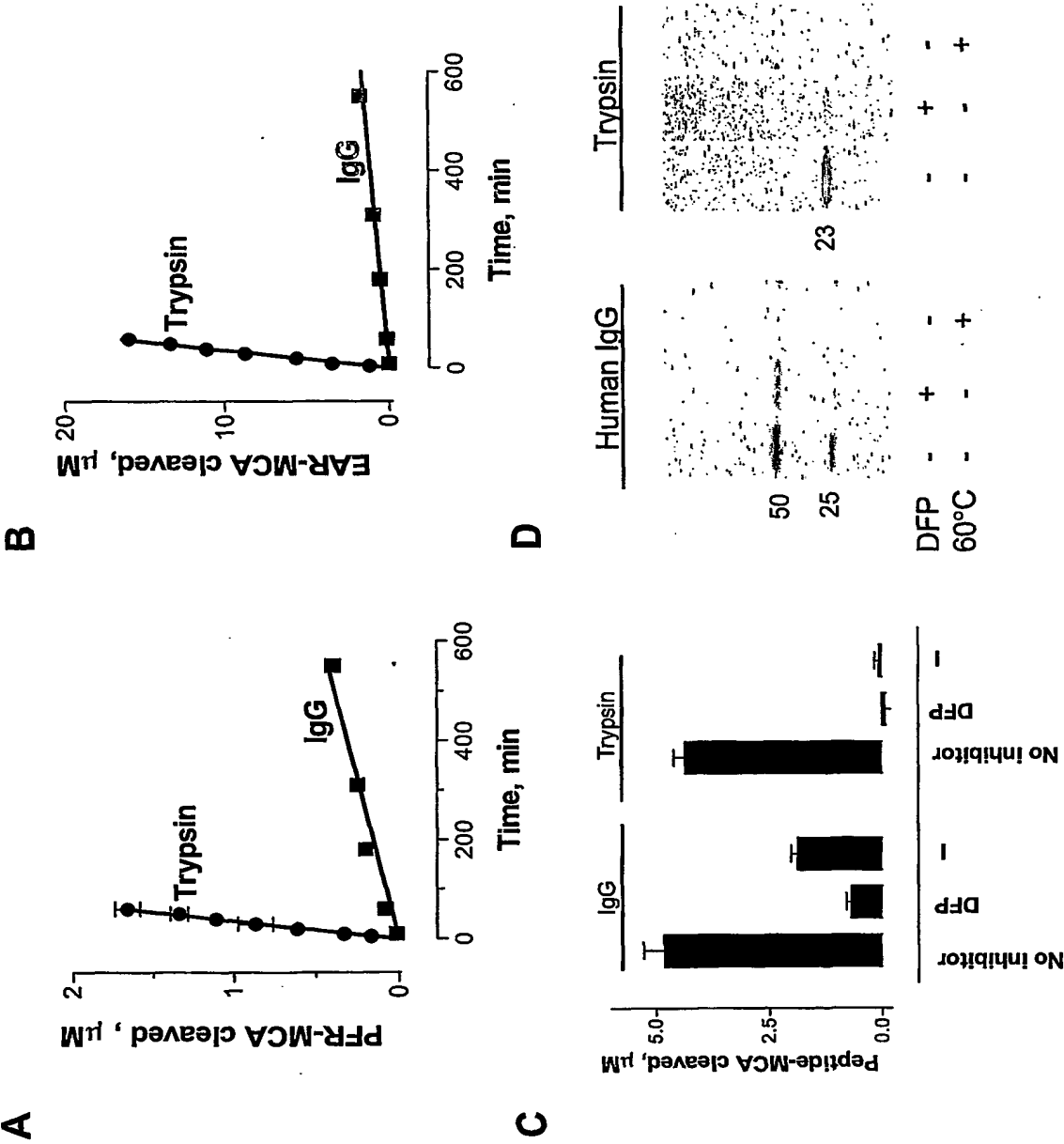
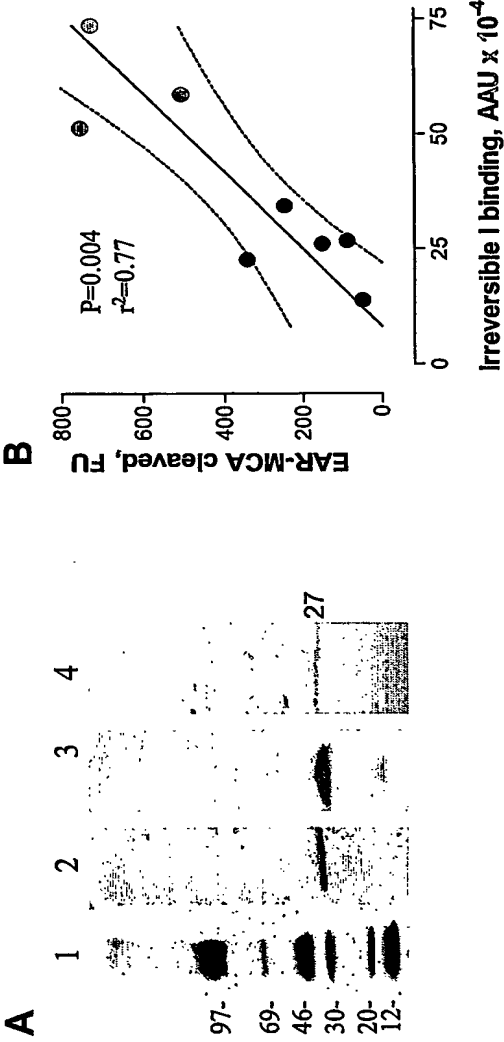


Fig. 10



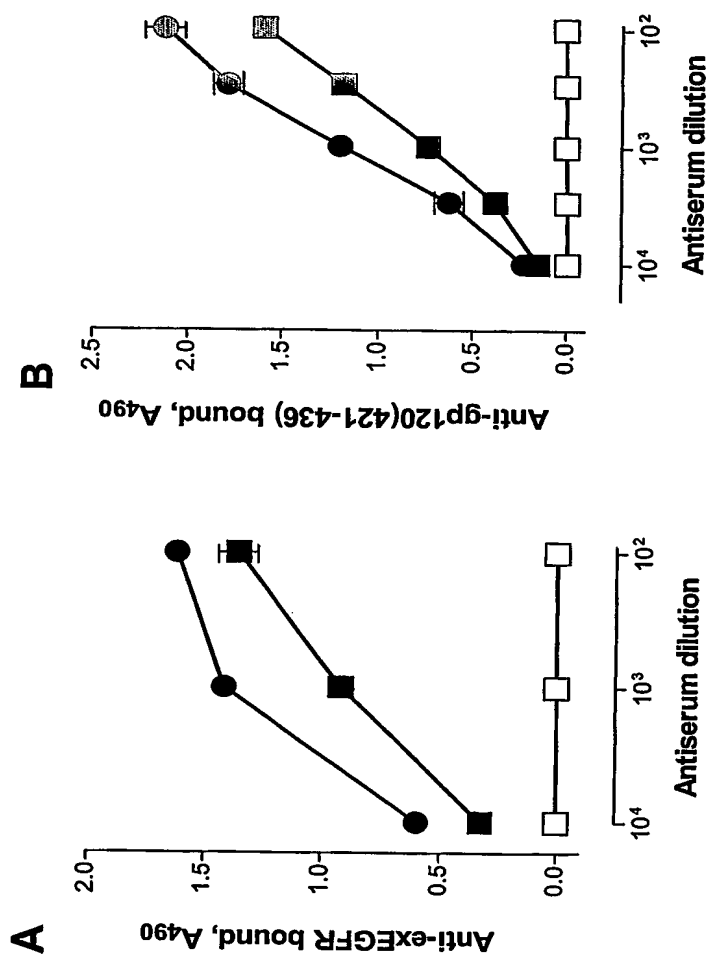


Fig 11

Fig 12

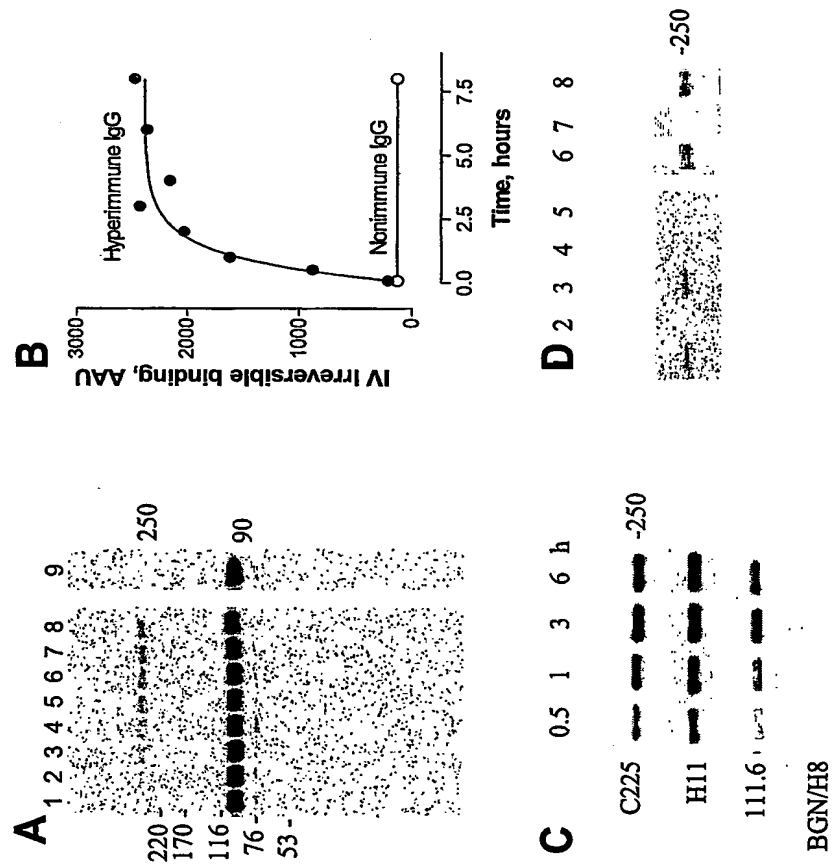


Fig 13

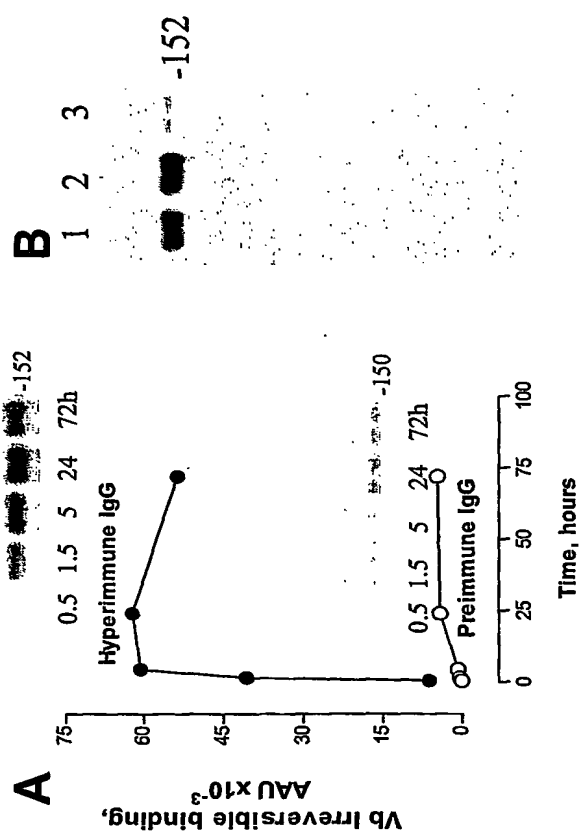




Fig 14

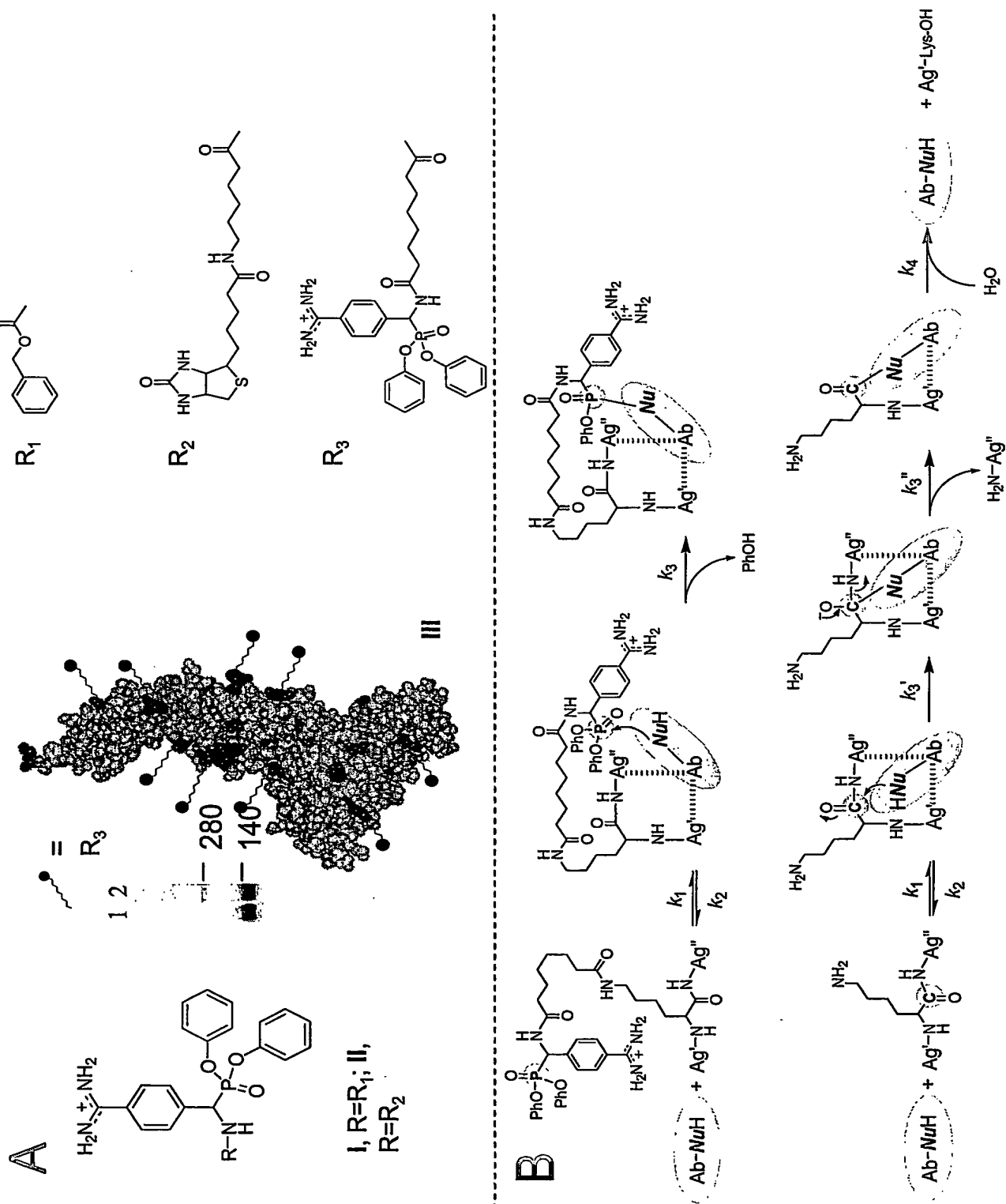


Fig 15

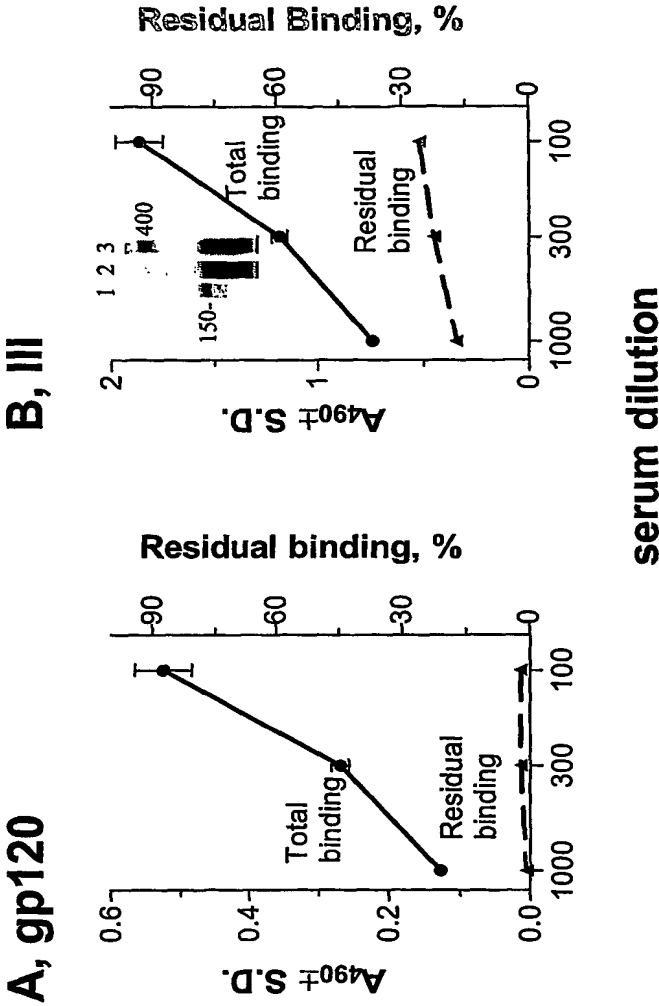
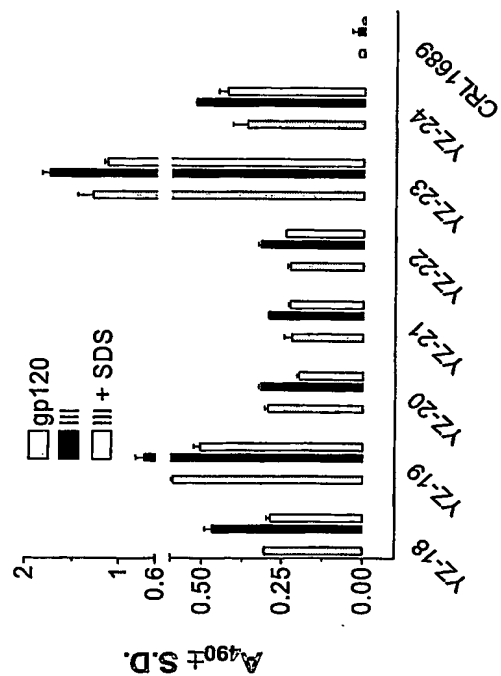


Fig 16

A



B

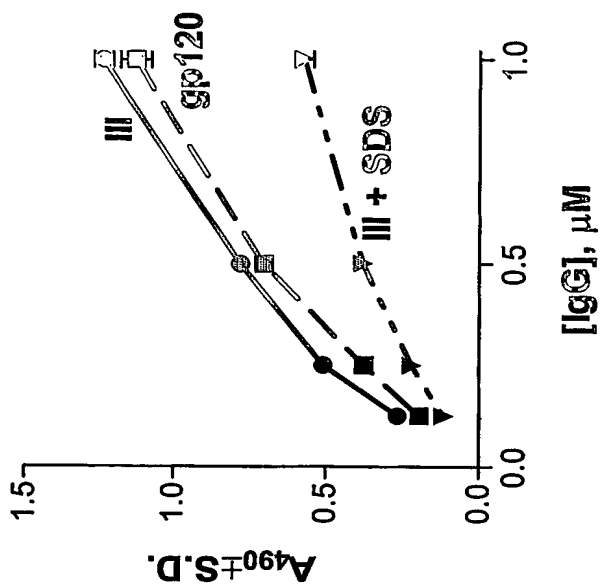


Fig 17

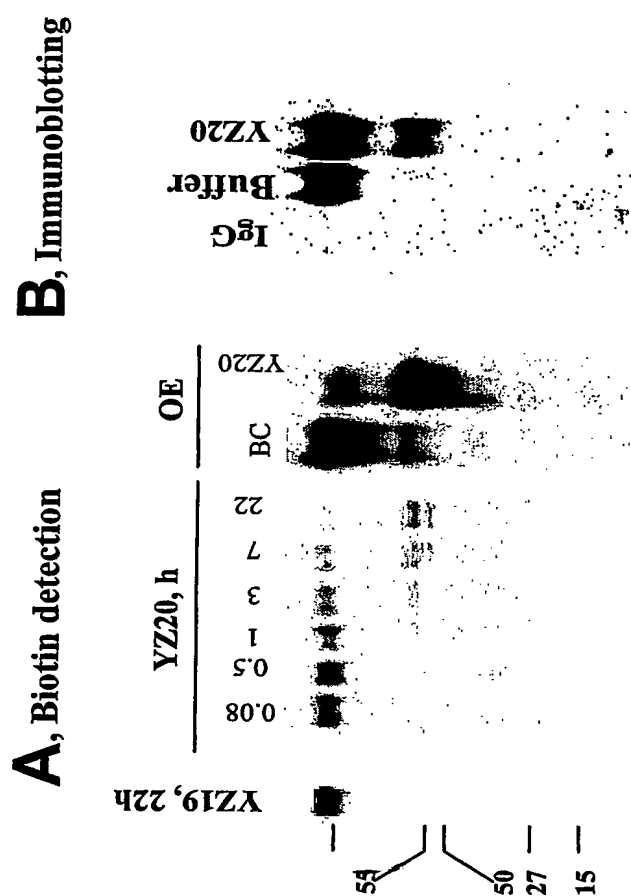


Fig 18

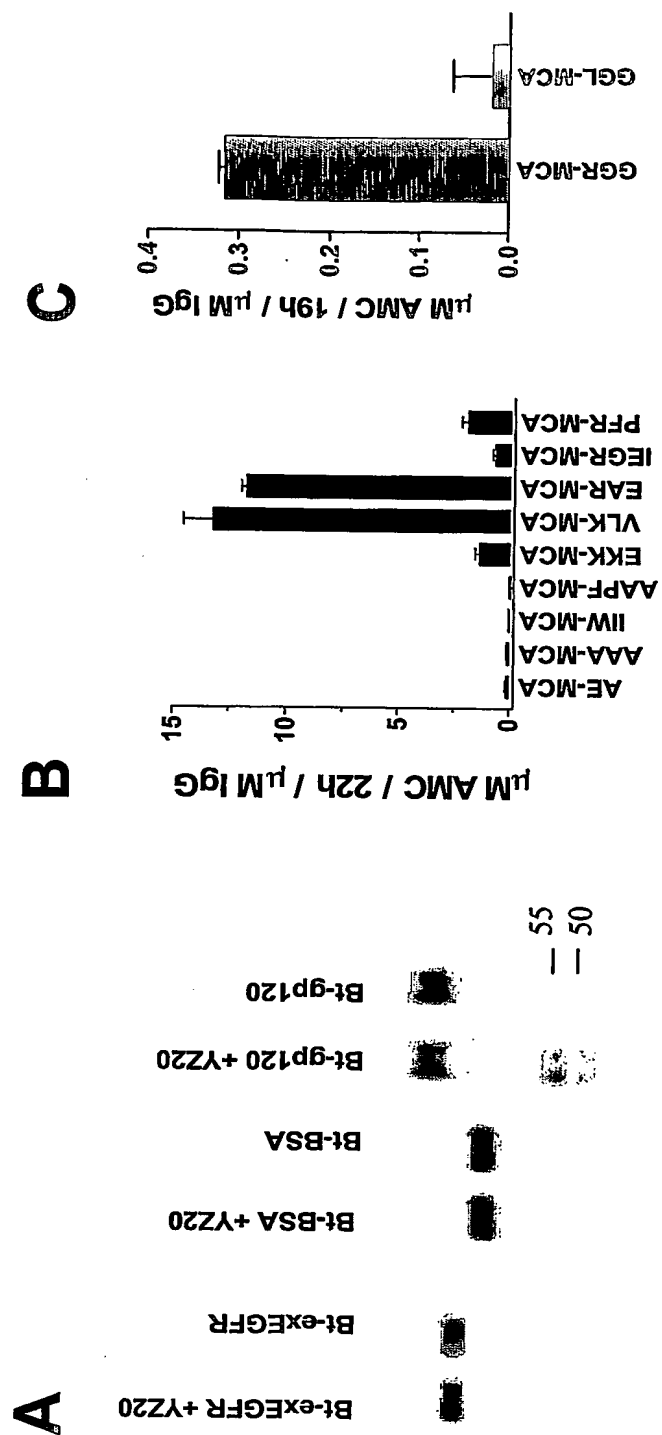


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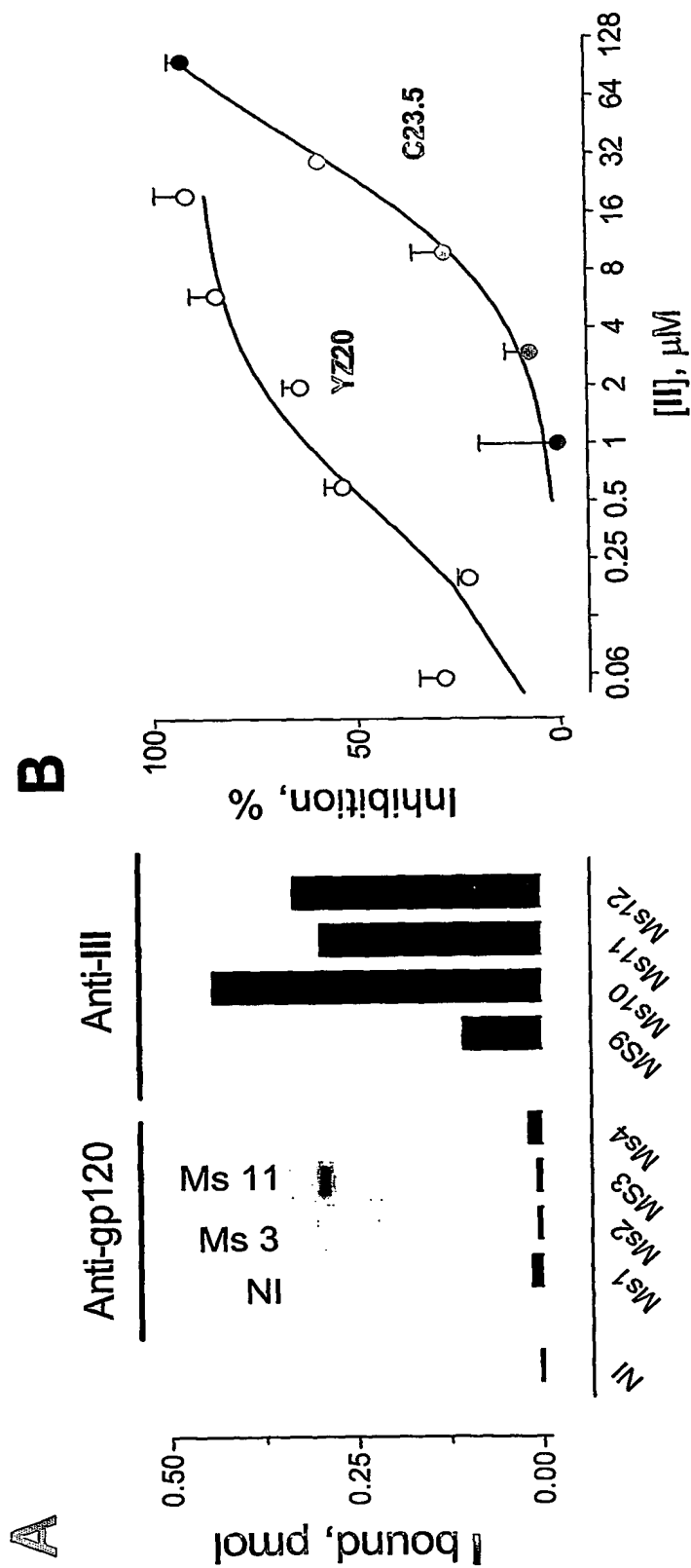
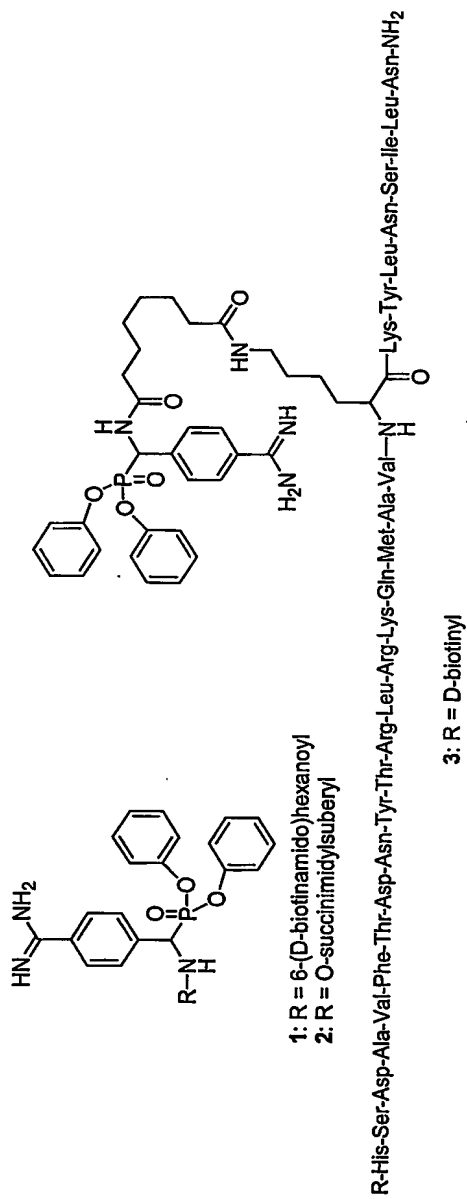


Fig 20

A



B

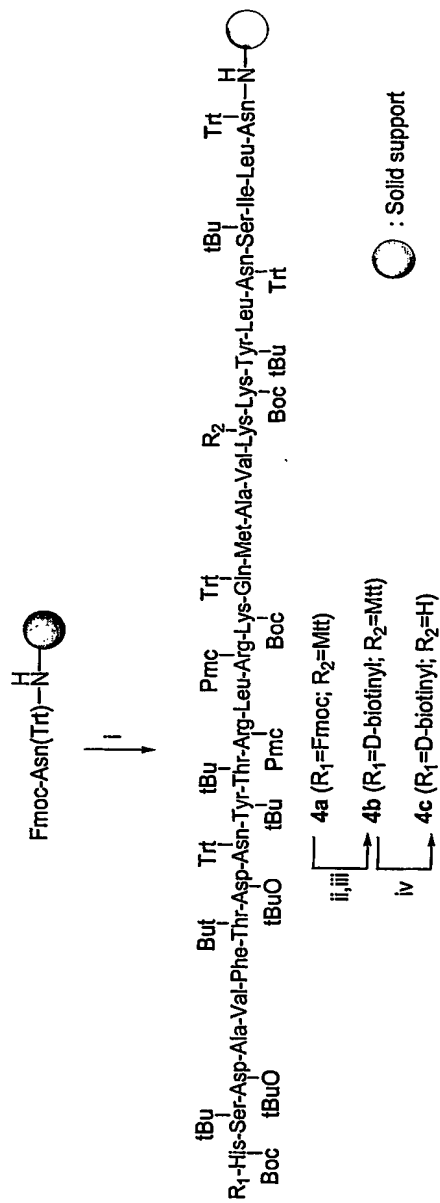

 : Solid support

Fig 21

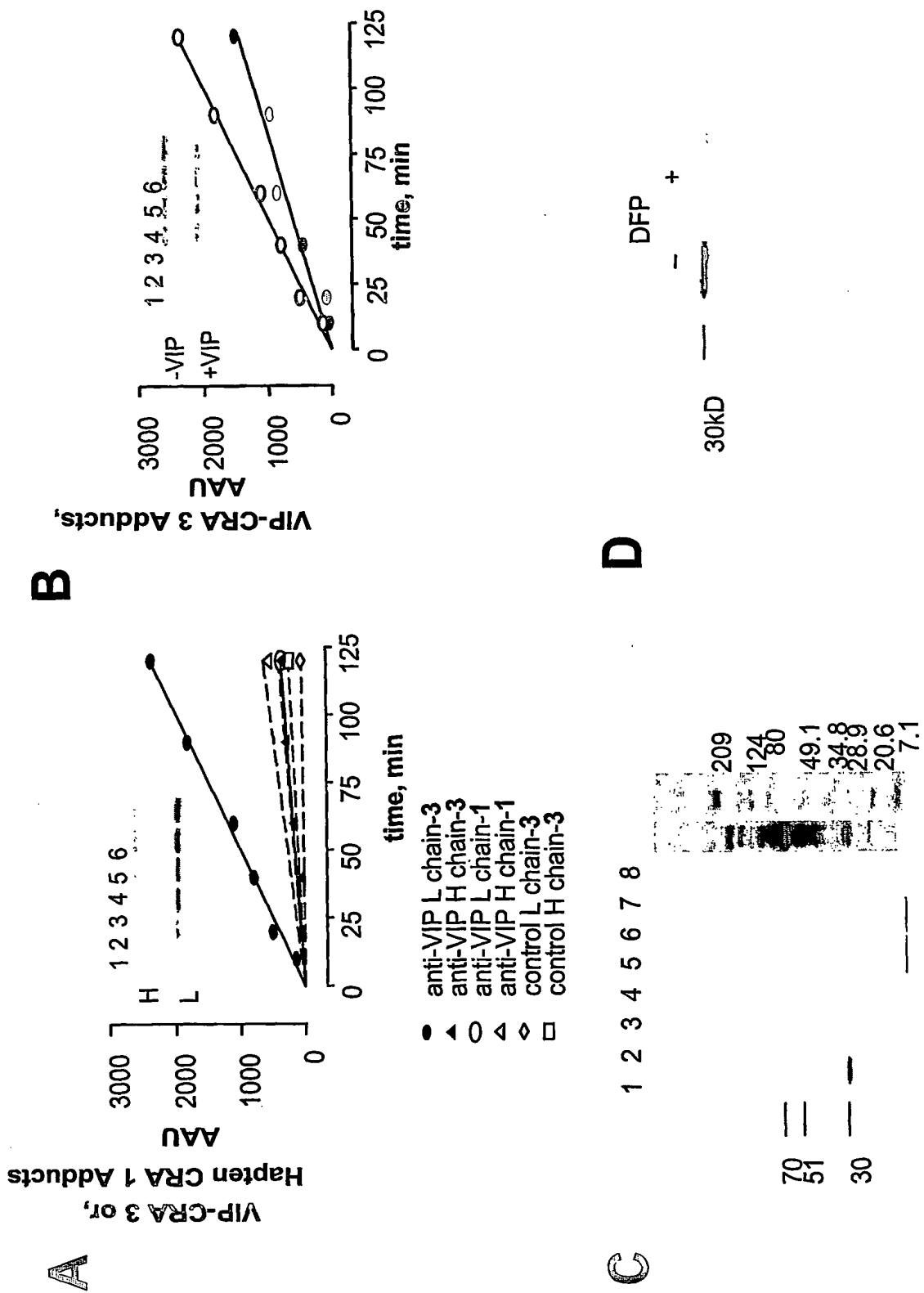
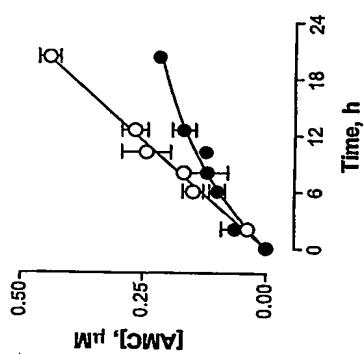


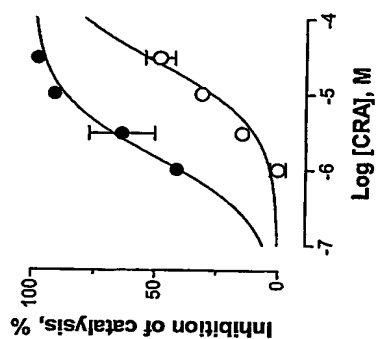


Fig 22

A



B



C

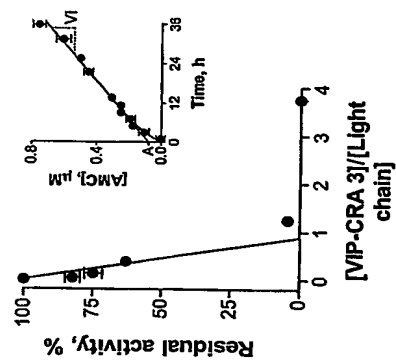
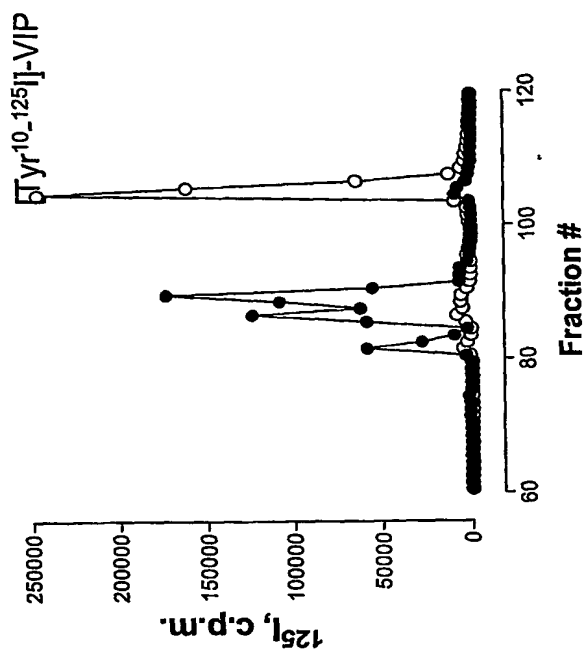


Fig 23

A



B

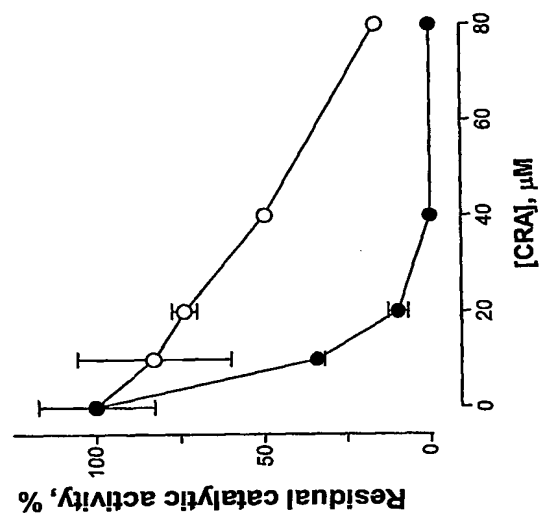


Fig 24

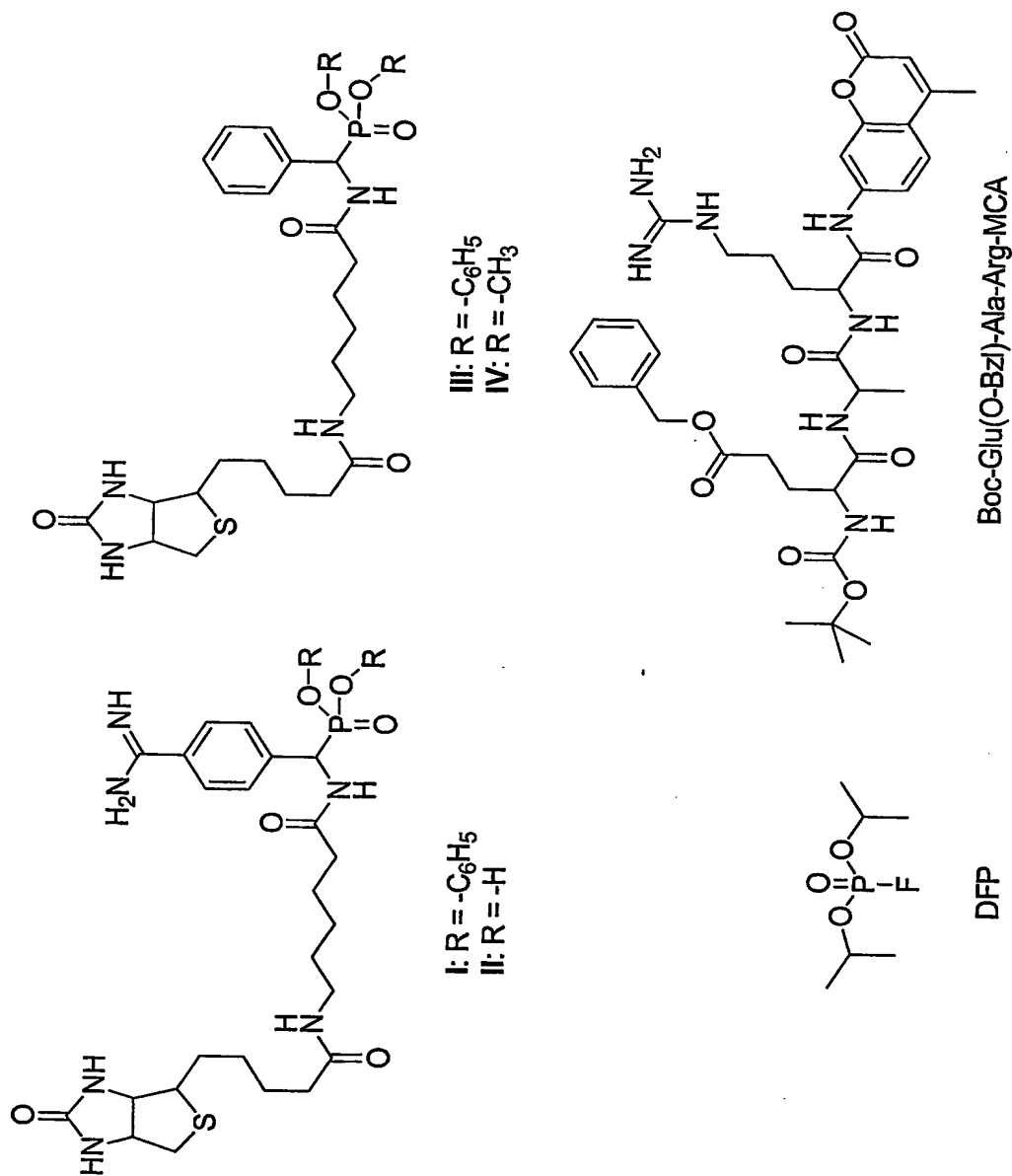


Fig 25

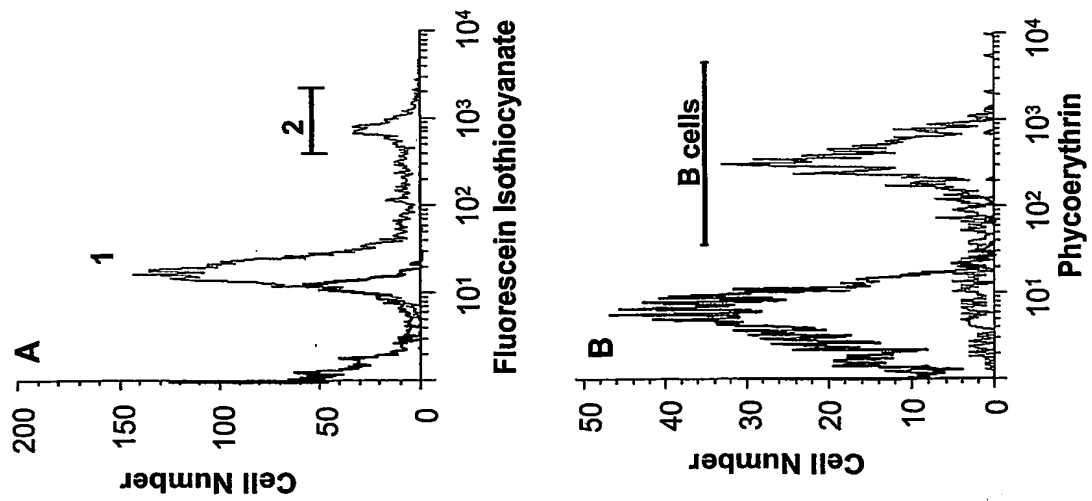


Fig 26

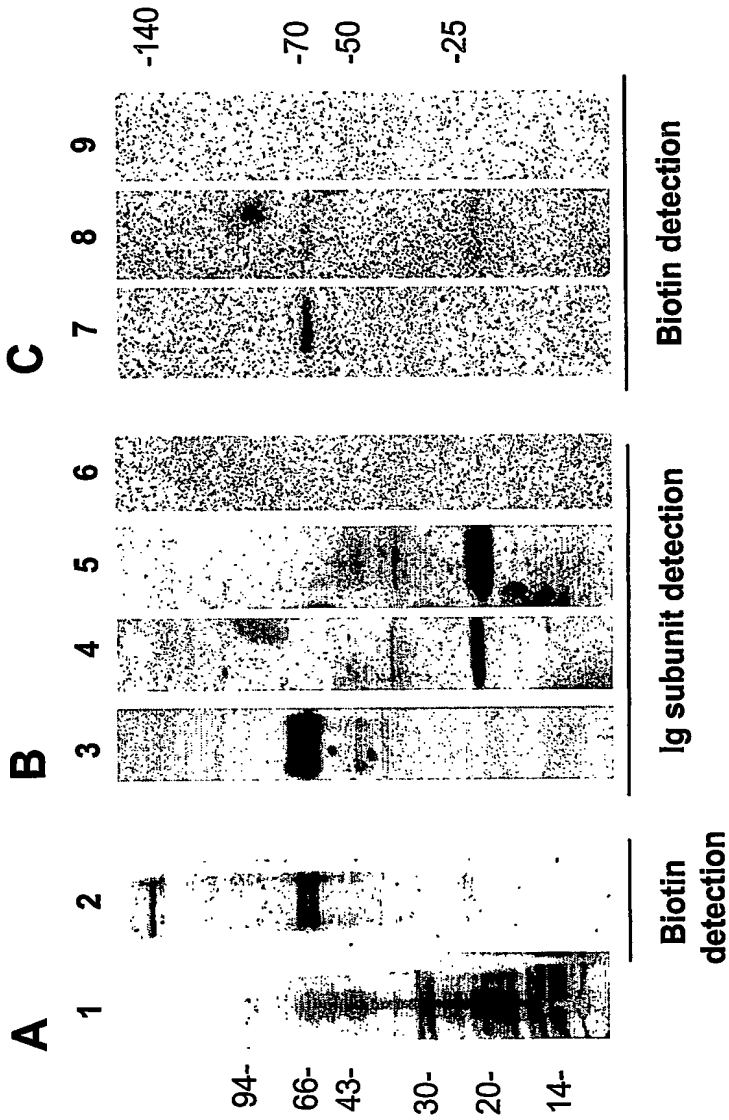


Fig 27

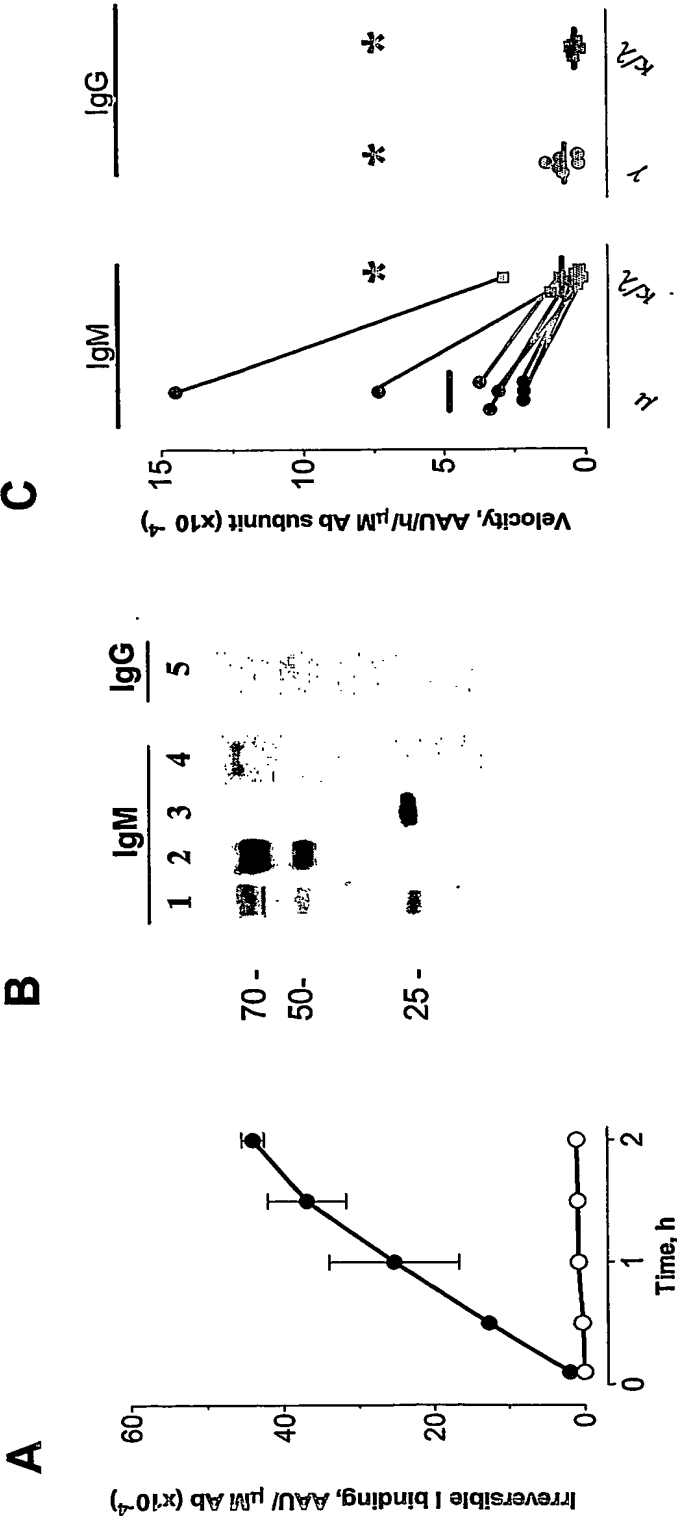


Fig 28

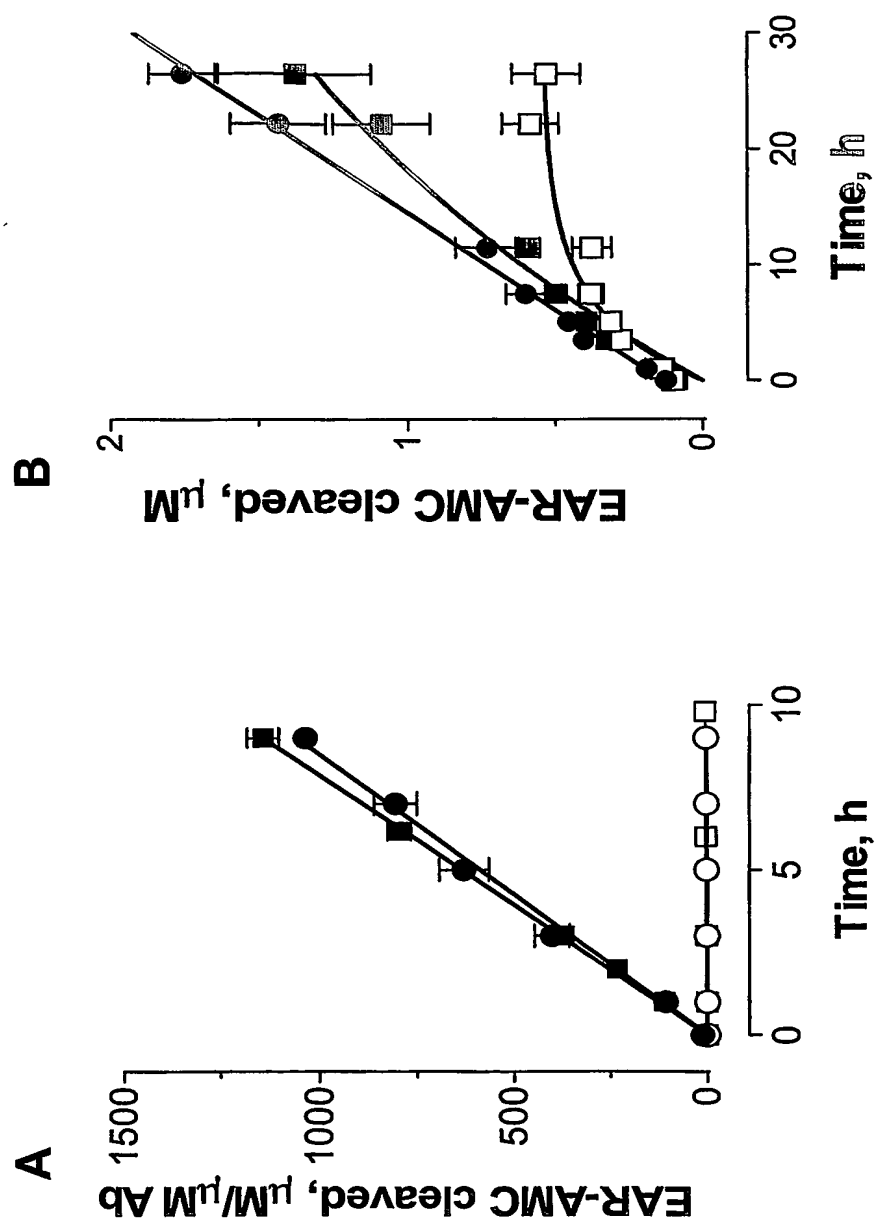
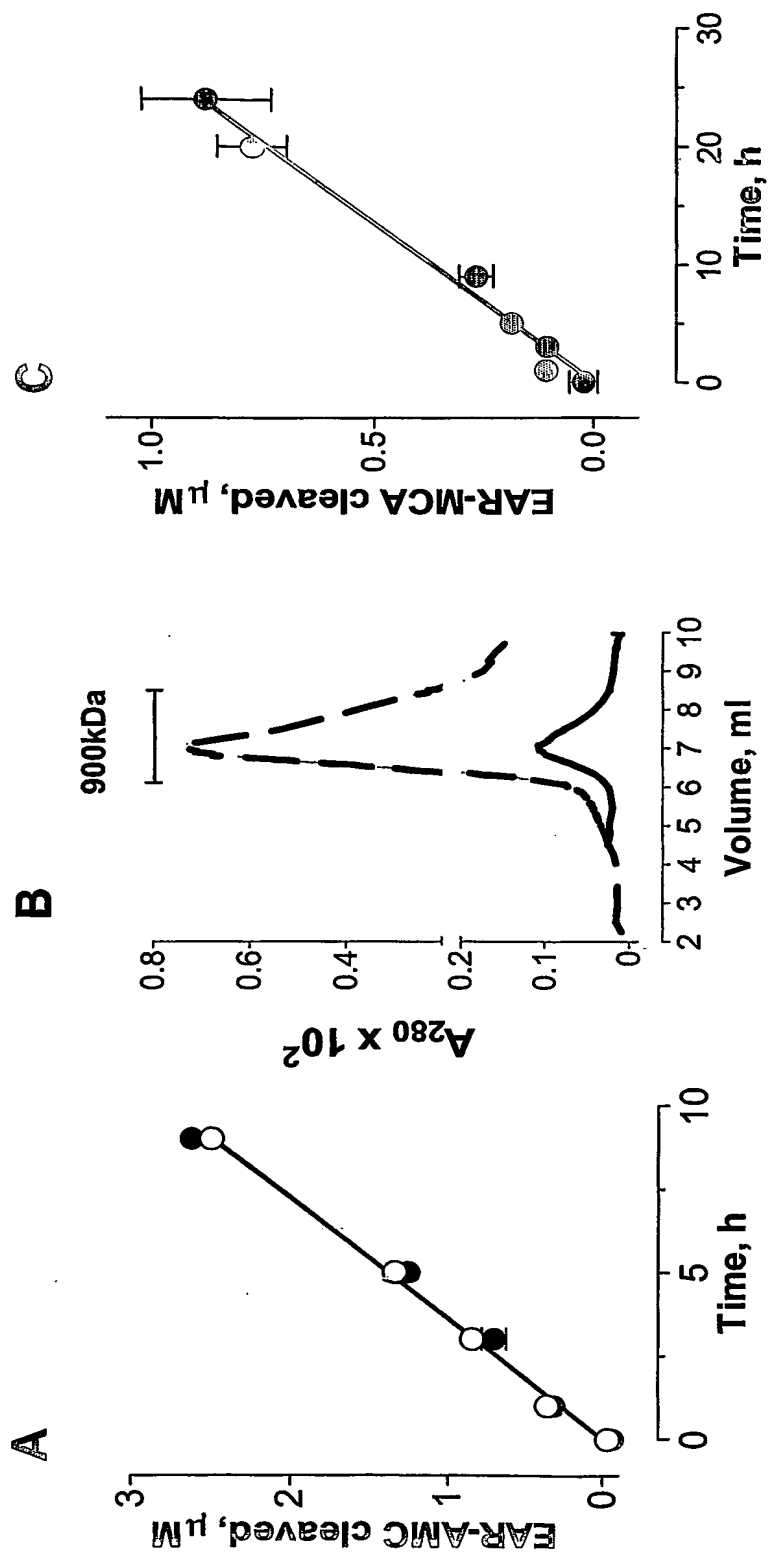


Fig 29





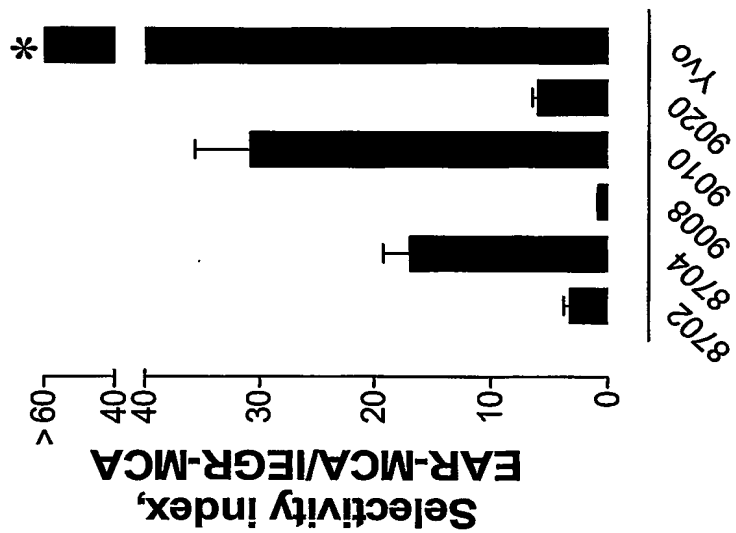


Fig 30

Fig 31

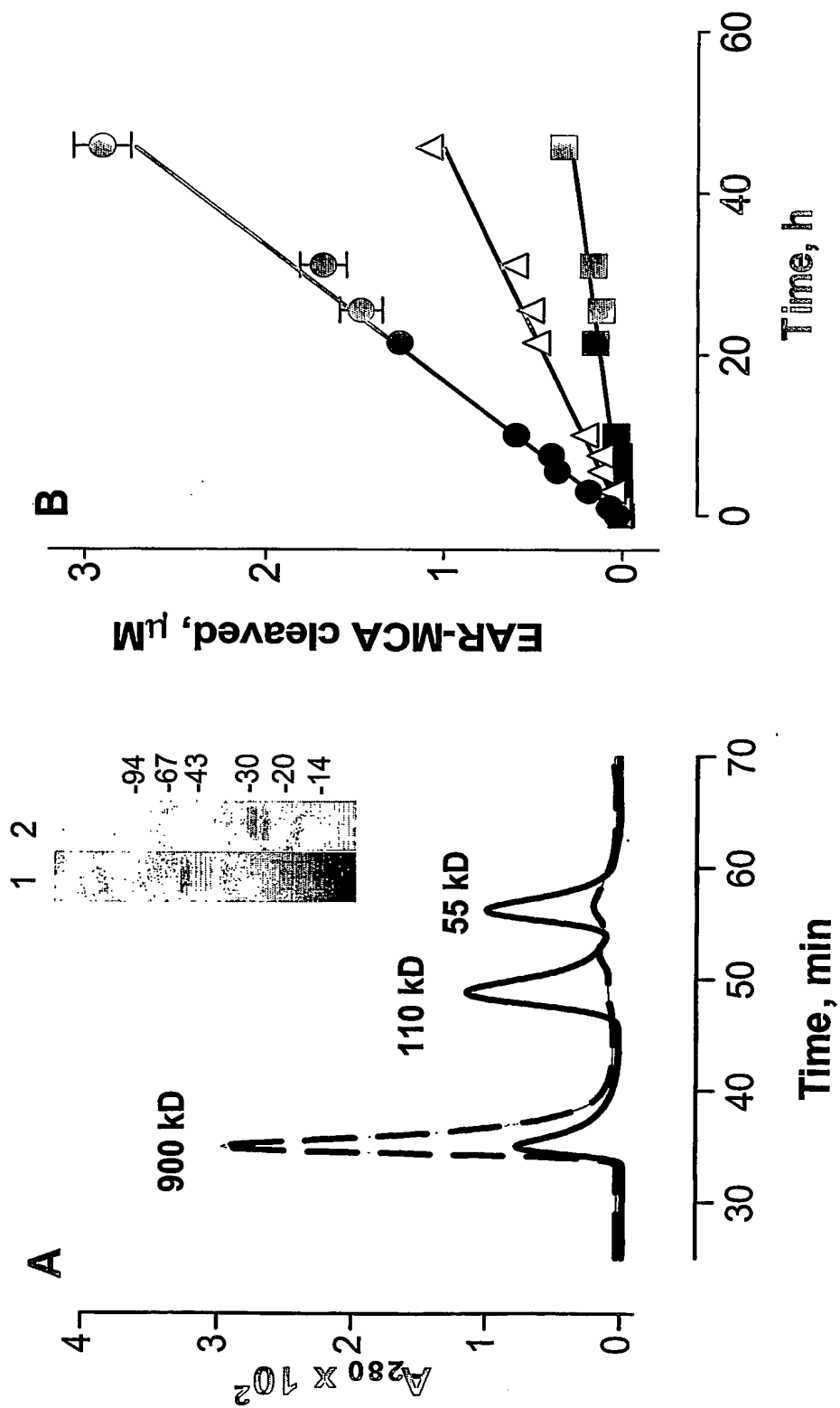


Fig 32

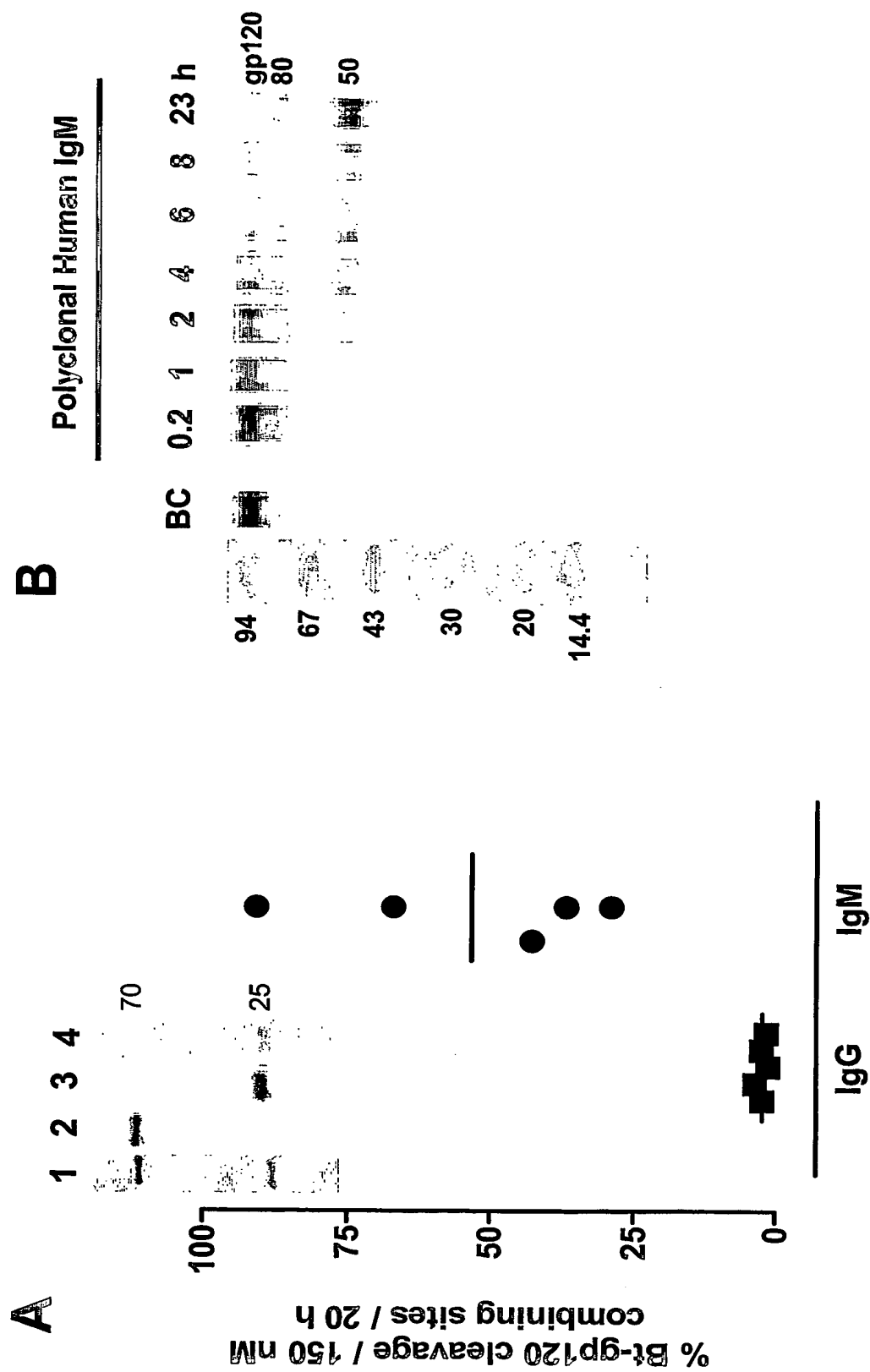


Fig 33

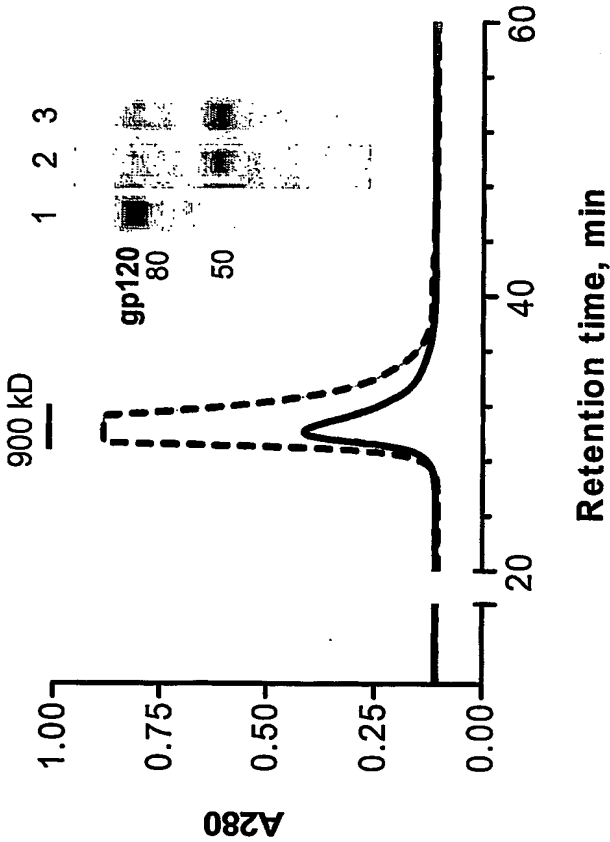


Fig 34

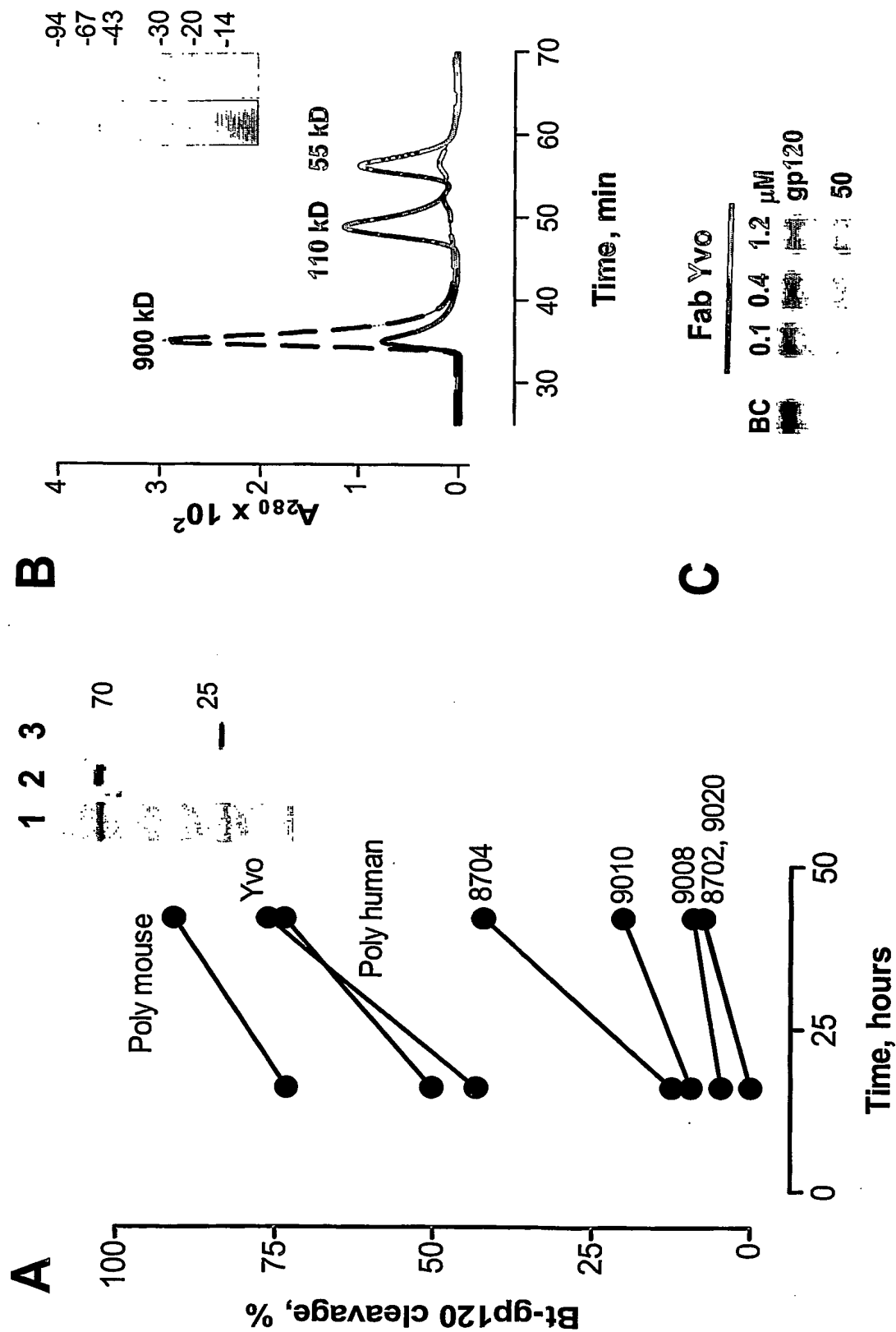


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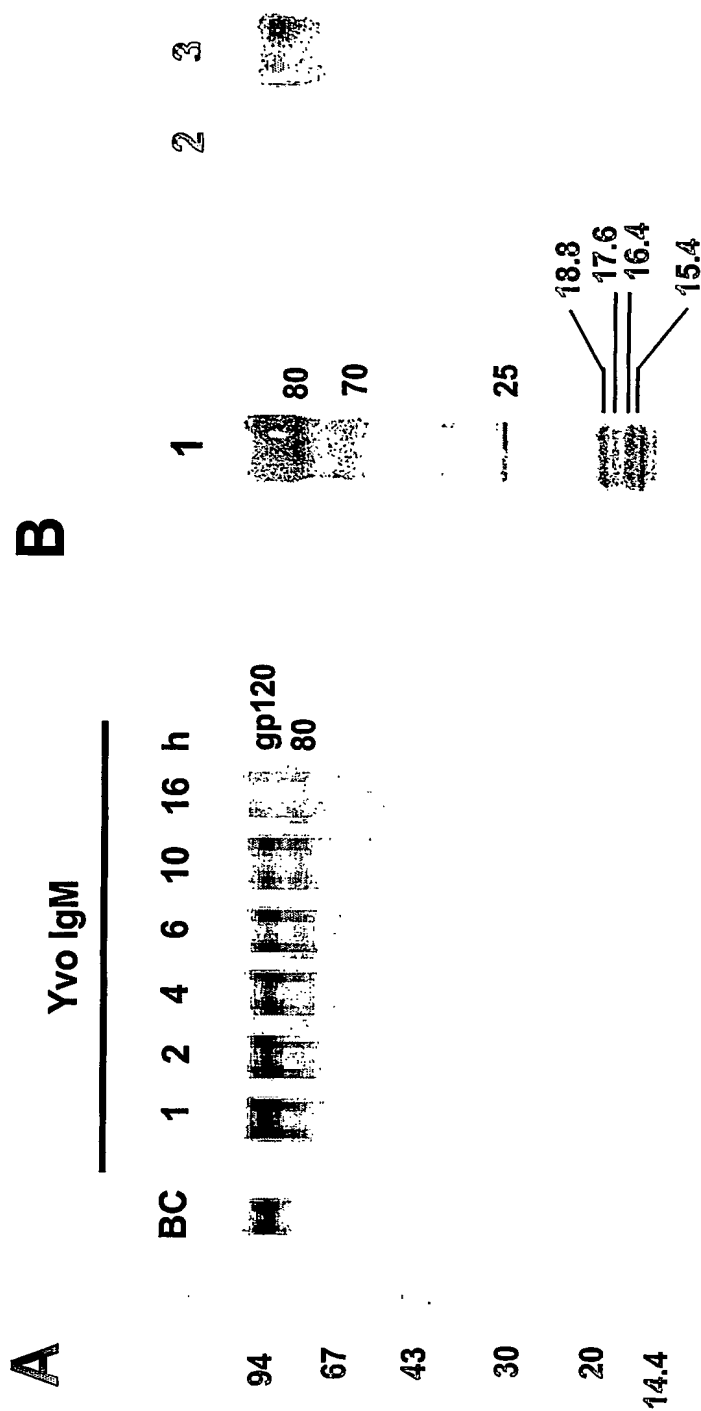


Fig 36

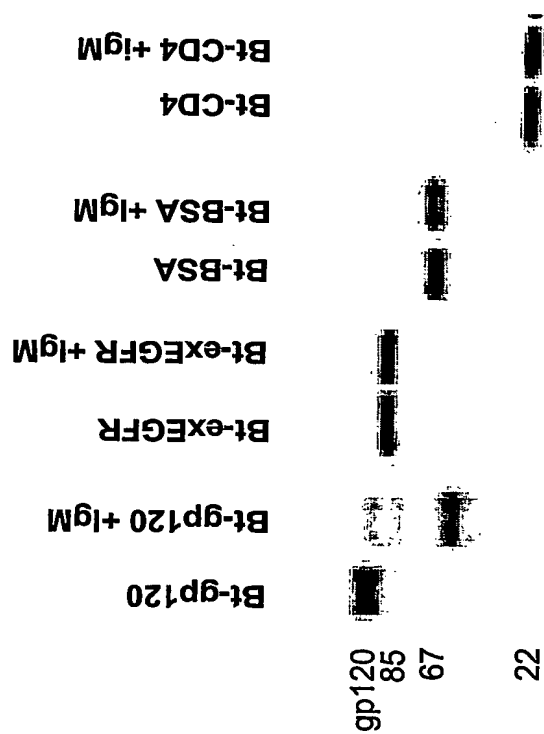


Fig 37

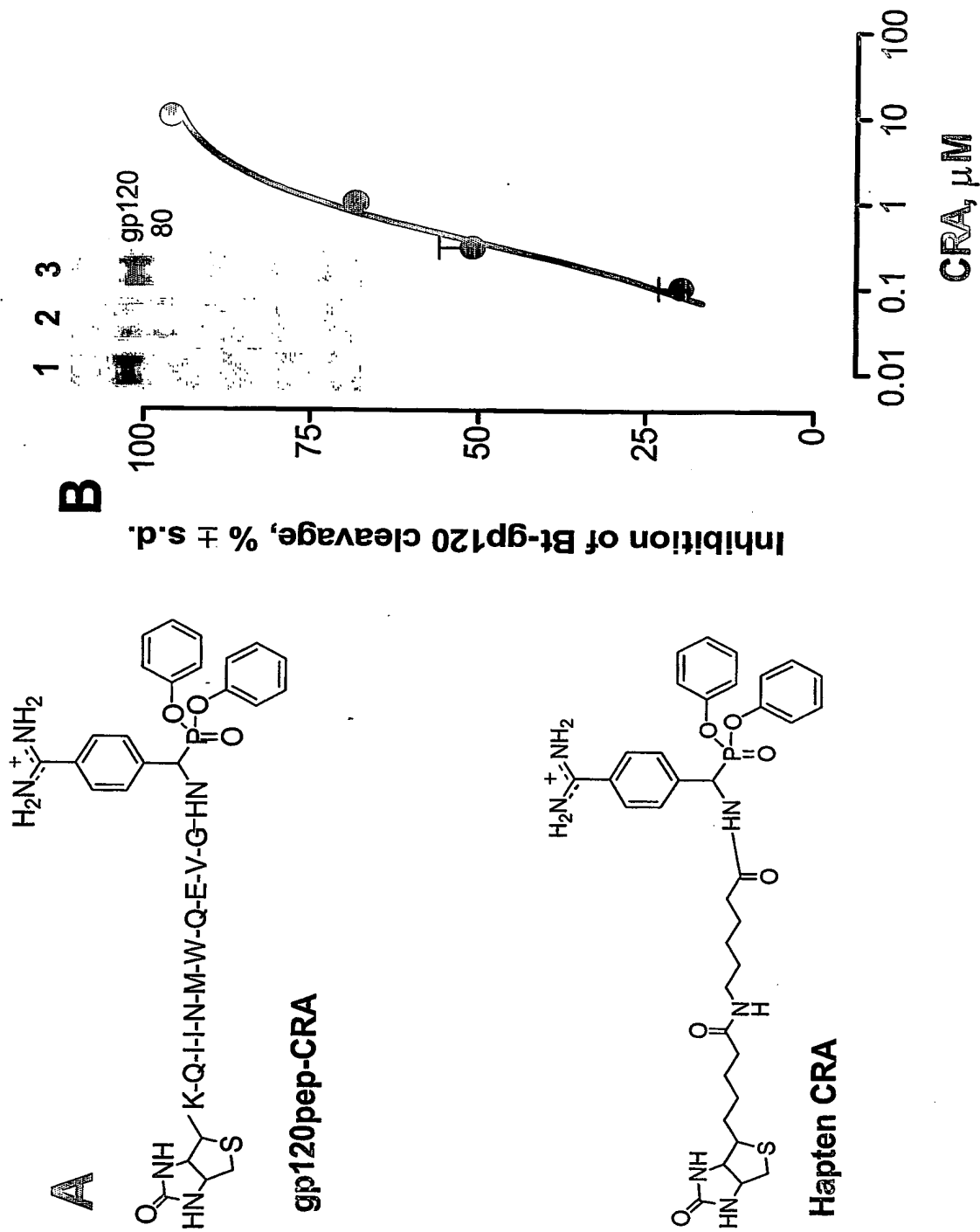




Fig 38

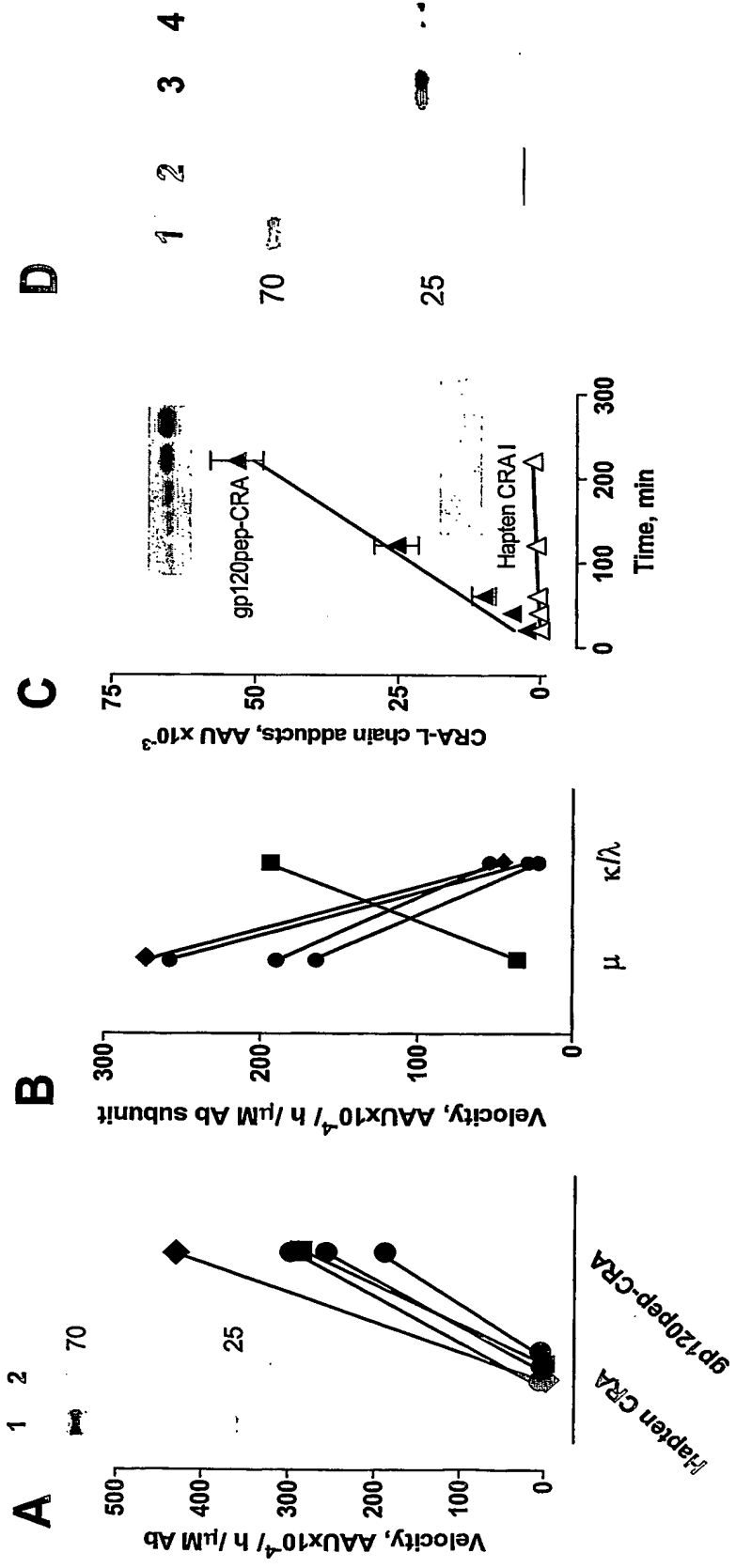
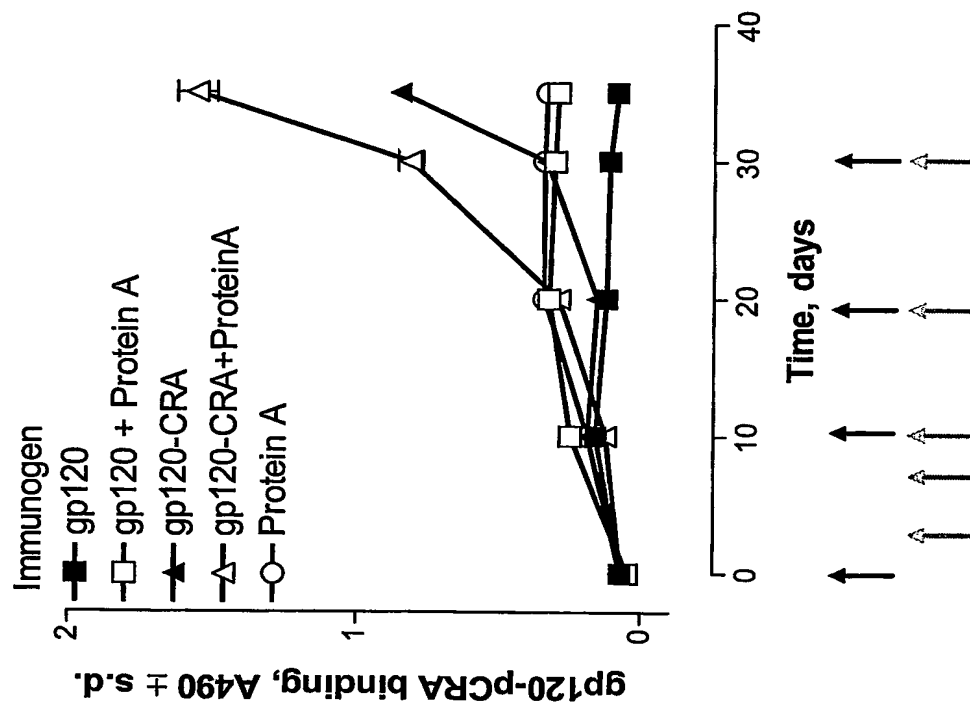


Fig 39



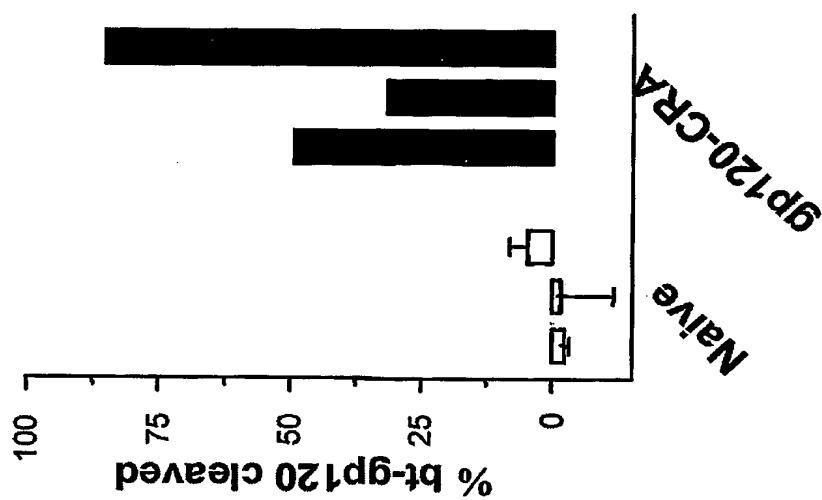


FIG 40

Fig 41

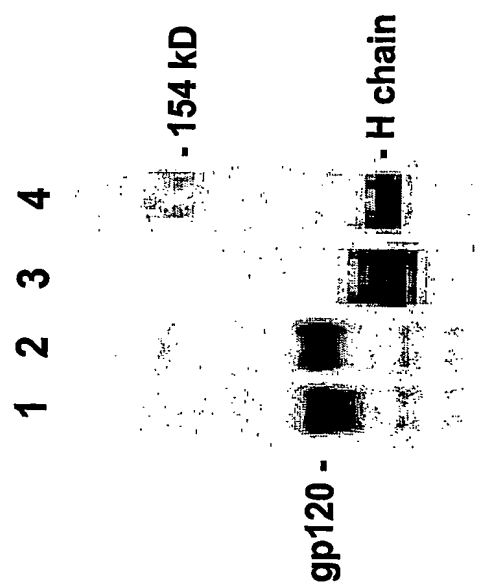


Fig 42

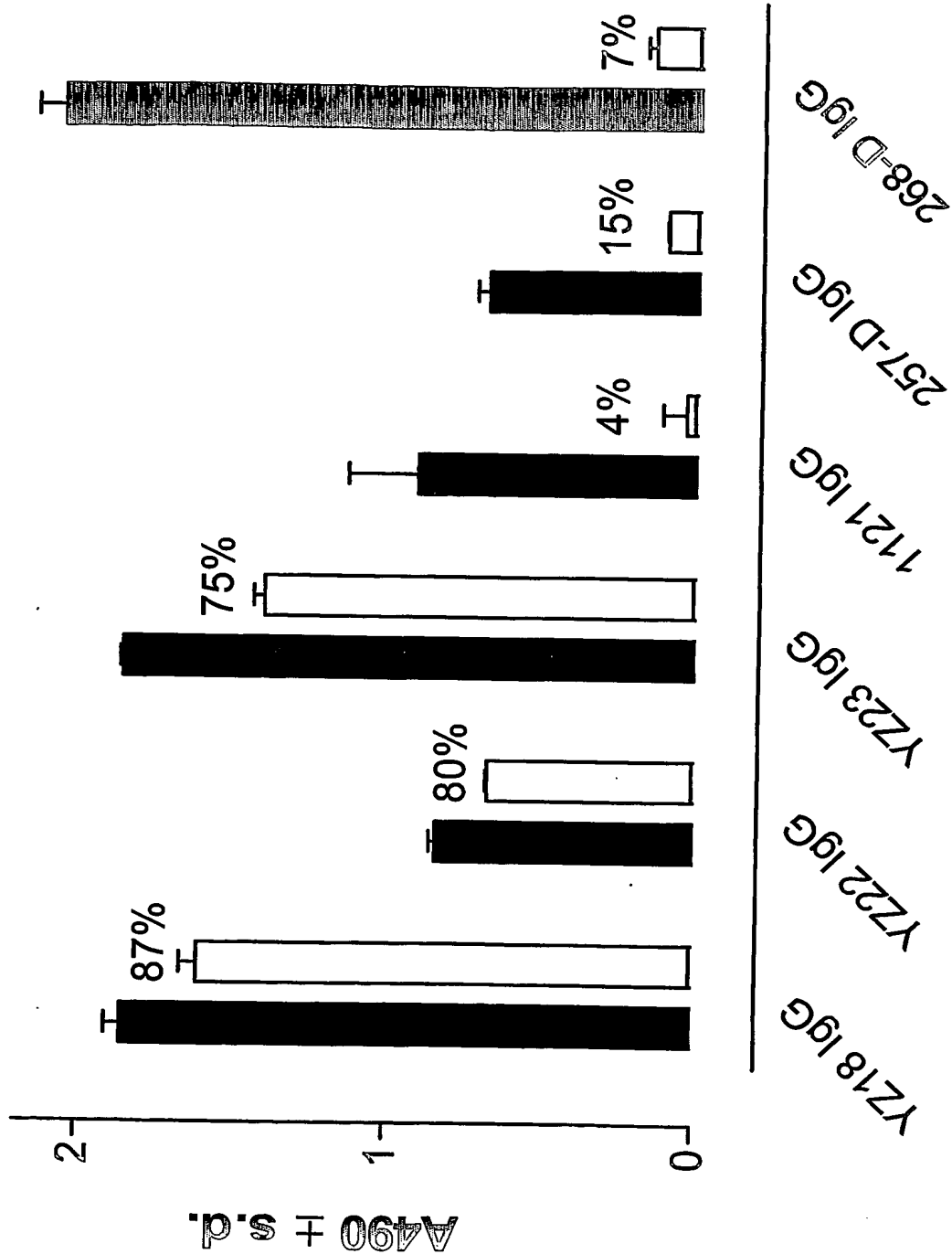
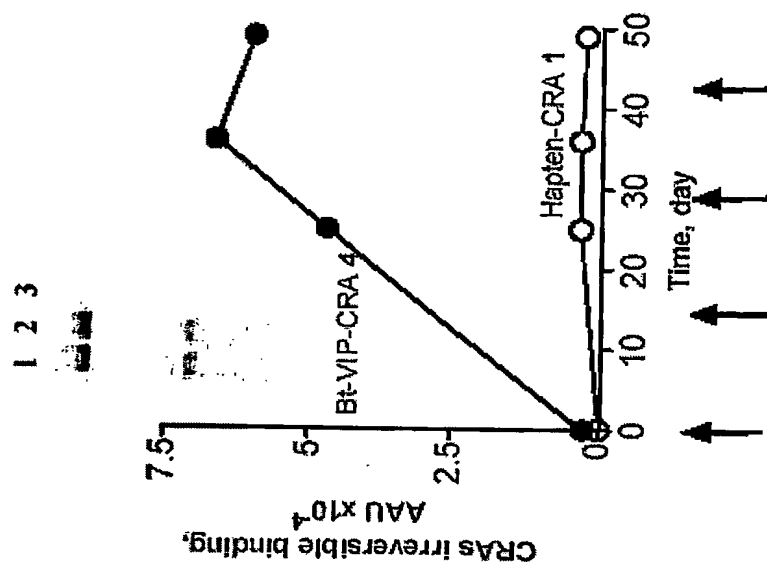
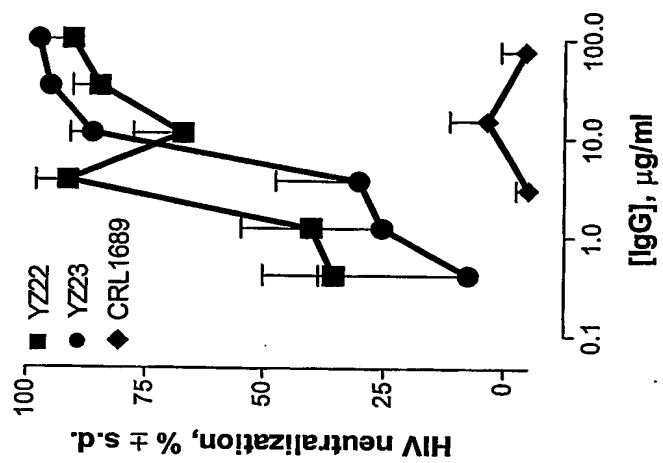


FIG 43



**Fig 44**

**A**

clone SKL6

40  
30  
20  
10  
0

ΔFU/22 h

1 2 3 4 5 6 7

**B**

120  
67  
85

1 2 3 4 5 6

Bt-gp120 Bt-BSA Bt-EGFR

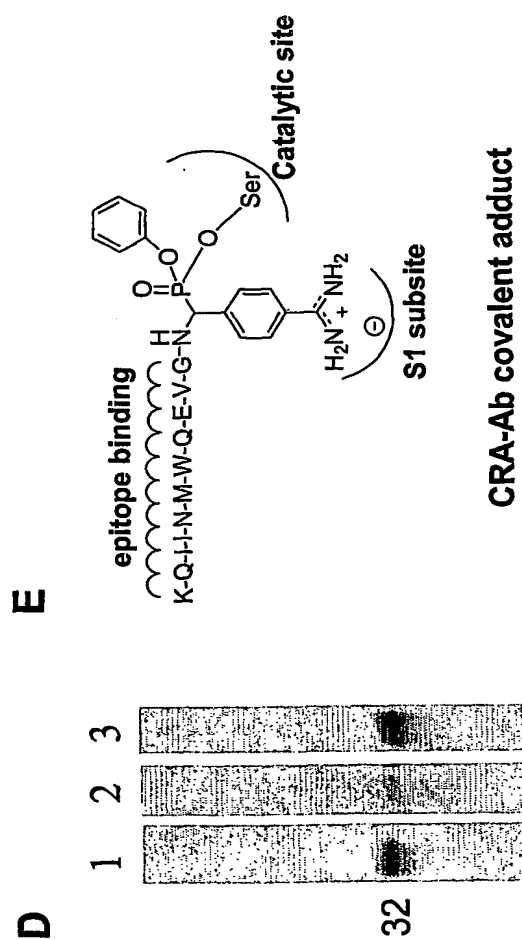
**C**

Bt-gp120(421-431)-tCRA bound, pmol

2  
1  
0

Time, min

0 500 1000 1500





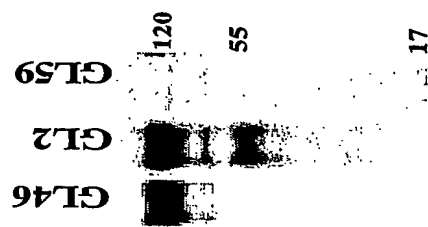


Fig 46

Fig 47

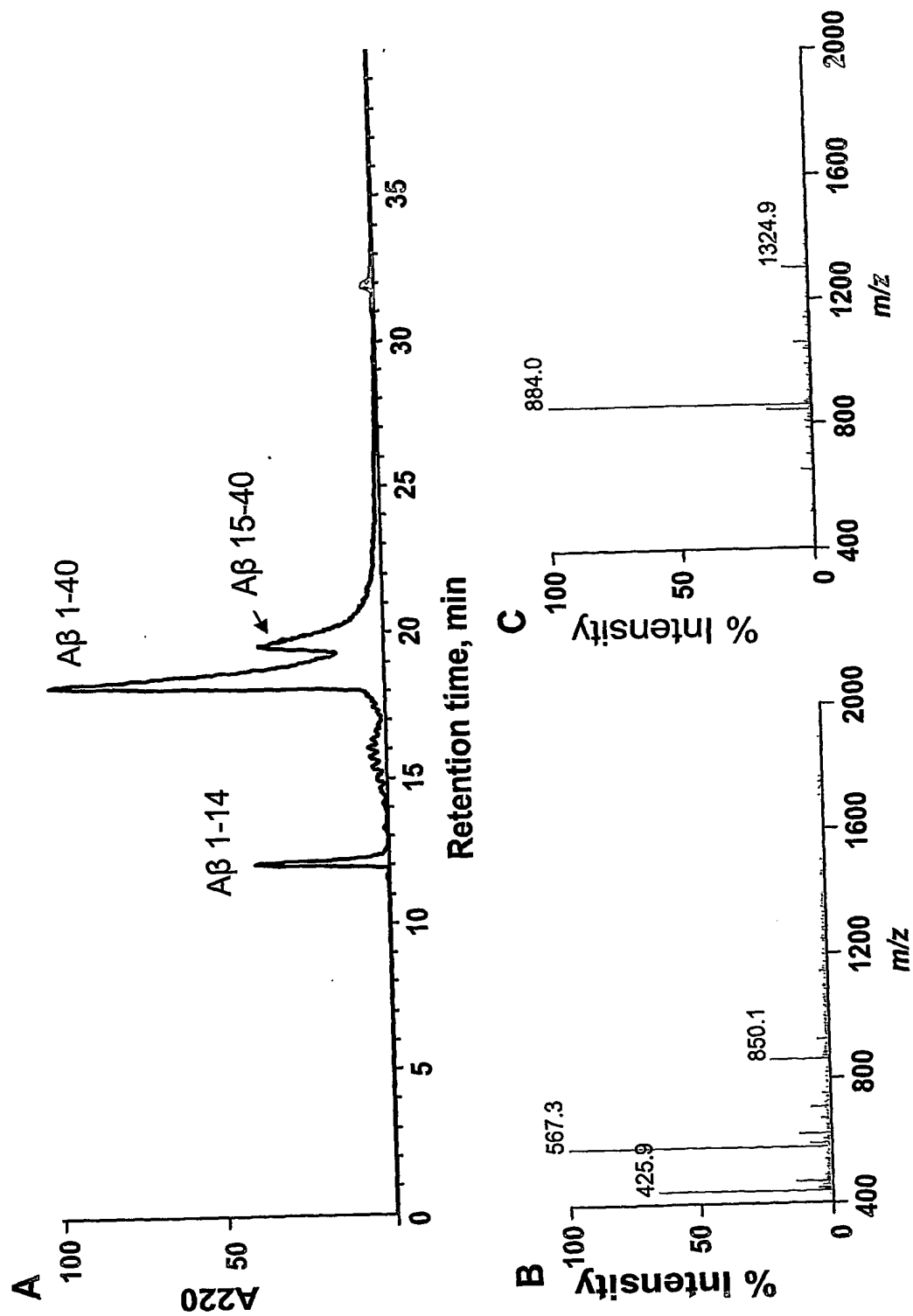


Fig 48

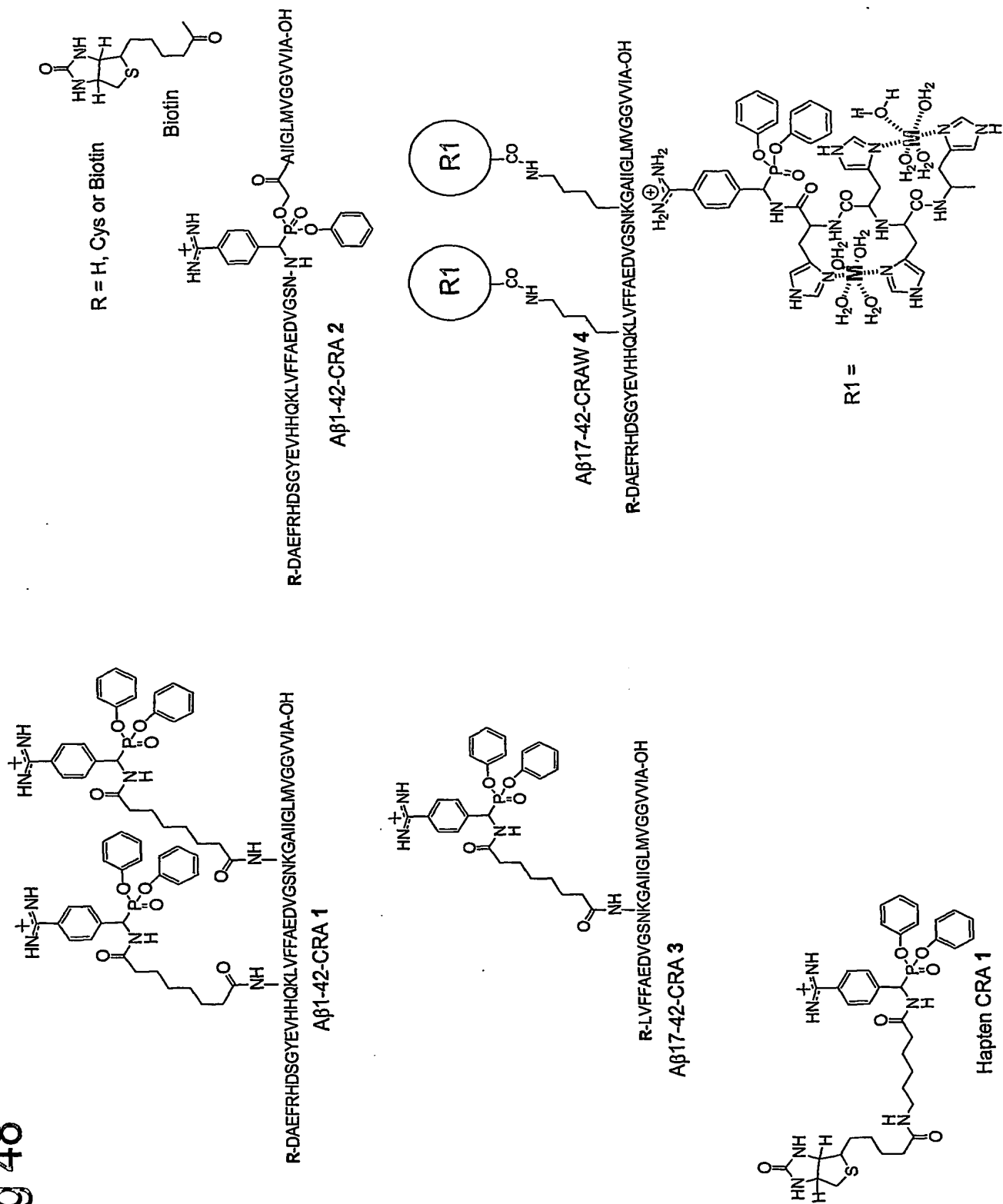
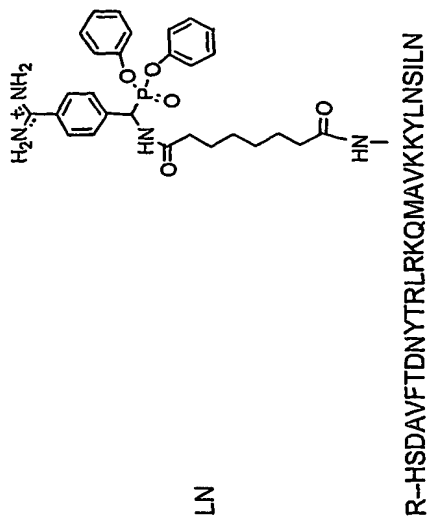
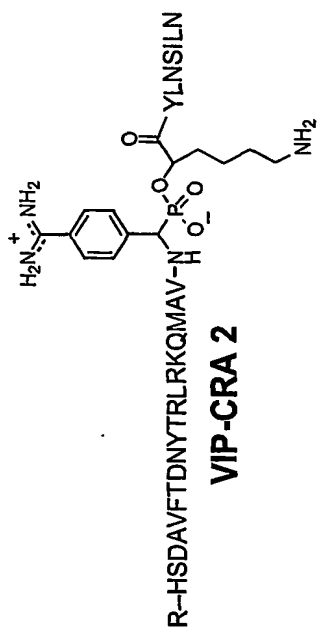
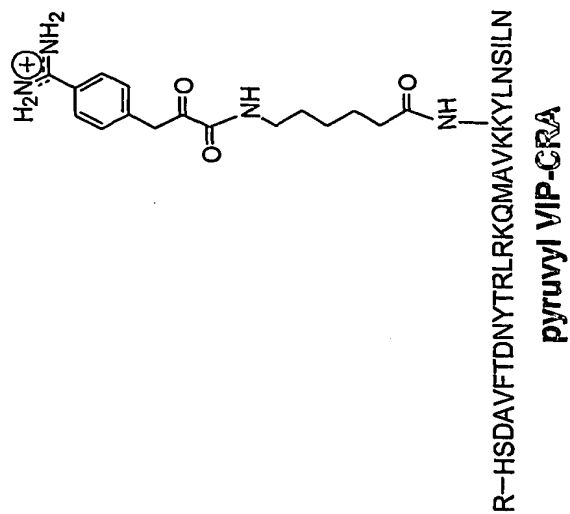


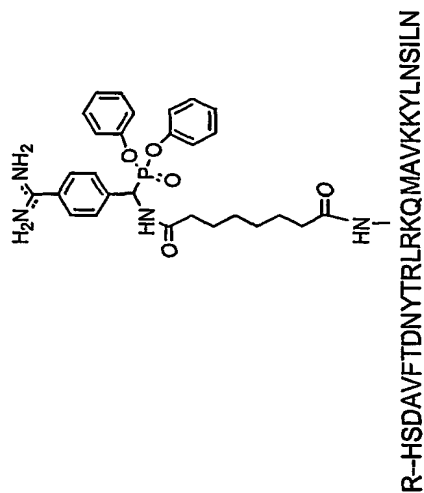
Fig 49



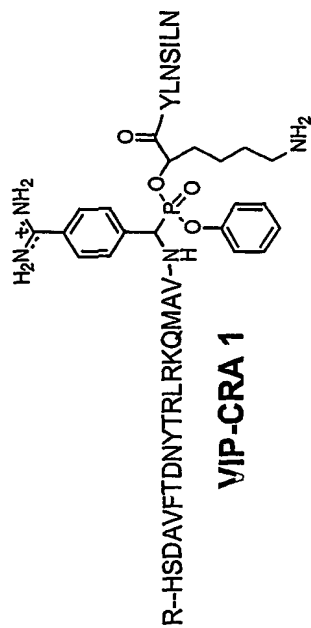
VIP-CRA 3



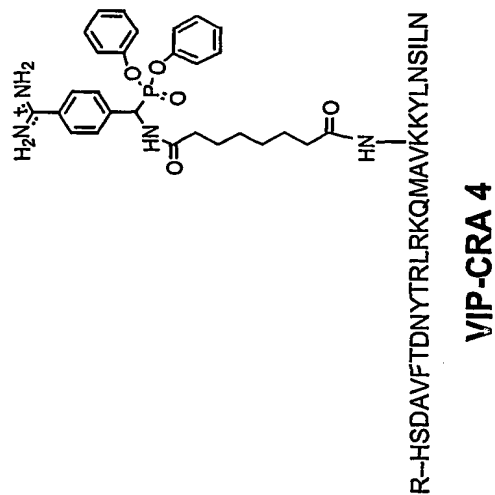
VIP-CRA 2



VIP-CRA 5



VIP-CRA 1



VIP-CRA 4

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